VŠB – TECHNICAL UNIVERSITY OF OSTRAVA

FACULTY OF ECONOMICS

Department of Finance

Financial Situation Assessment of the Selected Company

Zhodnocení finanční situace vybrané firmy

Student: Ruonan Hu

Supervisor of the bachelor thesis: Ing. Haochen Guo, Ph.D.

VŠB - Technical University of Ostrava
Faculty of Economics
Department of Finance

Bachelor Thesis Assignment

Student:	**Ruonan Hu**
Study Programme:	B6202 Economic Policy and Administration
Study Branch:	6202R010 Finance
Title:	Financial Situation Assessment of the Selected Company Zhodnocení finanční situace vybrané firmy
The thesis language:	English

Description:

1. Introduction
2. Description of the Financial Analysis Methods
3. Profile of Selected Company
4. Evaluation of the Financial Situation of the Selected Company
5. Conclusion

Bibliography
List of Abbreviations
Declaration of Utilisation of Results from the Bachelor Thesis
List of Annexes
Annexes

References:

HIGGINS, Robert. *Analysis for financial management*. New York: McGraw-Hill/Irwin, 2012. ISBN 978-0-07-803468-8.
PETERSON DRAKE, Pamela and Frank, J. FABOZZI. *Analysis of financial statements*. Hoboken: Wiley, 2012. ISBN 978-1-118-29998-2.
WAJDOVÁ, L., A. DOBEŠ and A. KIRÁLY. *Financial analysis of an industrial company*. Košice: Technická univerzita v Košiciach, 2014. ISBN 978-80-553-1749-6.

Extent and terms of a thesis are specified in directions for its elaboration that are opened to the public on the web sites of the faculty.

Supervisor: **Ing. Haochen Guo, Ph.D.**

Date of issue: 22.11.2019

Date of submission: 07.05.2020

Ing. Iveta Ratmanová, Ph.D.
Head of Department

doc. Ing. Lenka Kauerová, CSc.
Vice Dean for Study Affairs
delegated to the negotiation r.no.
VSB/19/050319/9900 from 24.9.2019

The declaration

"I hereby declare that I have elaborated the entire thesis including annexes myself."

Ostrava dated 15.05.2020

胡若男 Ruonan Hu

Student's name and surname

Contents

1. Introduction

Financial situation assessment is so-called financial analysis, it is one of the essential parts of the complex financial management of a company. Through the financial situation assessment, the manager can judge the financial strength of enterprise then evaluate the business performance of enterprise and reveal the problems existing in financial activities. Moreover, it can figure out the potential of enterprise and seek ways to improve the management level and economic benefits of enterprise. So, it is necessary to assess the financial situation of a company. Usually, we need some financial analysis methods to conduct the assessment.

The objective of the financial situation assessment is to analyze the financial performance of selected company with the help of some applicable financial methods, then find out the problems and provide solutions to promote its future development.

Microsoft Corporation is founded in 1975 by Bill Gates and Paul Allen, it is an American multinational technology company with headquarters in Redmond, Washington. What's more, it is the forerunner of the world's personal computer software development. It develops, manufactures, licenses, supports, and sells computer software, consumer electronics, personal computers, and related services. Its best-selling software products are the Microsoft Windows operating systems and Microsoft Office series of software, it is the world's largest computer software provider.

This thesis has 5 chapters: introduction, description of the financial analysis methods, profile of selected company, evaluation of the financial situation of the selected company and conclusion.

Chapter 2 is the theoretical part of financial analysis, in the beginning it describes the general frameworks of financial analysis, then I will introduce the financial statements, which include the balance sheet, income statement and cash flow statement, I will

show you the basic structures of these financial statements. Most importantly, the financial analysis methods will be introduced, which includes common-size analysis, ratio analysis and Dupont analysis. In this chapter, the basic concept and formula of the financial methods will also be introduced. Through the concept, we can know the main purpose and function of this method, by which we can use the method better.

Chapter 3 is the profile of selected company, in this part, I will introduce the characteristics of Microsoft Corporation and provide some basic information of it. If you want to analyze the concrete situation, you must know the condition of the company, which includes the strategies and development of Microsoft.

Chapter 4 is the evaluation of the financial situation of the selected company, it is the practical part, in which I will use different analysis methods to evaluate the financial situation of Microsoft. It includes common-size analysis, financial ratio analysis and Dupont analysis. The financial ratio analysis includes: liquidity ratio, solvency ratio, profitability ratio and activity ratio. I will also use some financial data and compare the data in different years.

Chapter 5 is the conclusion part, in this part, I will draw a conclusion on the financial analysis of Microsoft. Some suggestions will be given according to the analysis.

2. Description of the Financial Analysis Methods

Financial analysis is a process in which we need obtain some accounting and reporting data and other related data as the basis, then use a series of financial analysis methods to evaluate the performance and health condition of a company. The financial data is related to a company's daily activities. With the help of financial analysis, we can also figure out the potential development ability of the company. The financial statements are necessary to financial analysis, because financial data are reflected by financial statements which include balance sheet, cashflow statement and income statement. Then we must use some financial methods to make evaluation. The main methods include common-size analysis, ratio analysis and Dupont analysis. In common-size analysis, horizontal analysis and vertical analysis will be introduced, this method aims to compares the financial data in two different ways. In ratio analysis, it used to evaluate the solvency capacity, profitability capacity, activity capacity and liquidity capacity. In Dupont analysis, it aims to divided the ROE into several part and evaluate the effect degree of each factor. It is an economic application discipline that provides accurate information or basis for investors, creditors, managers and other organizations or individuals concerned about the enterprise to understand the enterprise's past, evaluate the enterprise's current situation, and predict the enterprise's future to make correct decisions.

2.1 Main functions of financial analysis

The main goal of financial situation assessment is to assess the current financial situation and the possible future development of the selected company and prepare the necessary steps to improve its financial position, ensure its future prosperity and improve its future decision-making processes.

Financial analysis is an important basis for evaluating financial situation and business performance. Through financial analysis, we can understand the solvency, operating

capacity, profitability and cash flow of the enterprise, reasonably evaluate the operating performance of the operator, to reward the good and punish the bad, and promote the improvement of management level.

Financial analysis is an important means to achieve financial goals. The fundamental goal of corporate finance is to maximize corporate value. Through financial analysis, constantly tap the potential, expose the contradictions from various aspects, find out the gap, fully understand the unused human and material resources, find out the reasons for the improper use, and promote the operation of enterprises in accordance with the enterprise value maximization goal.

Financial analysis is an important step to implement correct investment decision. Through financial analysis, investors can understand the profitability and solvency of enterprises, so as to further predict the level of return and risk after investment, so as to make correct investment decisions. [1]

2.2 Financial statements

Financial statements reflect the daily activities of a company, they also indicate the financial performance of a company. financial statements are extremely useful for the assessment of a firm's situation, from which we can whether the firm's operation is efficient and know the source and application of capital. The manager can make better decisions with the help of financial statements, and the manager can make adjustments to their own situation for the future development. The financial statements are also important to investors, the investors can get more information about the company, if the company expected market value will increase, they can invest more money, on the contrary, if the company is expected to have a loss, investors may adjust their investment strategies to reduce their loss. There are three most fundamental financial statements, Balance sheet, Income statement, Cash flow statement. [2]

2.2.1 Balance sheet

Balance sheet reflects the relationship among asset, liability and equity in a specific time. The balance sheet always obeys a rule: Asset = Liability + Owner's Equity, the term liability and equity refer the sources of capital and the term asset refers to the application of capital or the purpose of the capital. The balance sheet is usually reported at the end of a period. [3]

The assets can be divided into two categories: current assets and fixed assets. The current assets which can be converted into money relatively quickly include cash, accounts receivable, inventories and cash equivalent. The fixed assets have longer life than current assets, which includes tangible assets (land, buildings, equipment and so on) and intangible assets (copy right and good will). As for the liabilities, it can be classified into two parts: current liabilities and long-term liabilities, the current liabilities must be paid off within one year and the long-term liabilities has longer maturity. The equity can be divided as common and preferred shares, paid-in capital and retain earnings.

Figure 2.1 Basic structure of Balance sheet

Balance sheet

Assets	Amount	Liabilities and owners equity	Amount
Current assets		Current liabilities	
Cash	100	Accounts payable	300
Accounts receivable	120	Accrued expenses	200
Inventory	130	Short-term debt	100
Sundry debtors	250	Total current liabilities	600
Total current assets	600	Long-term liabilities	
Fixed assets		Long-term debt	1400
Land	1500	Total long-term liabilities	1400
Building (net)	800	Owners' equity	
Equipment (net)	700	Capital stock	1600
Other long-term assets	400	Retained earnings	400
Total fixed assets	3400	Total owners equity	2000
Total assets	4000	Total liabilities and owners' equity	4000

Source: [9]

2.2.2 Income statement

Income statement is another statement of financial statements, unlike the balance sheet it shows a company's loss or profit over a range of time. The income statement can be reported annually or quarterly, it can show the relationship among revenues, expenses, net income and earnings per share. There is a formula for calculation: Net Income = Revenue – Expenses. [4]

Now I will introduce the process about how the income statement works. The difference between sales and cost of goods/service sold is gross profit, then deducts the operating expenses such as commercial expenses, selling expenses and administrative expenses, so we can get the operating profit, after that minus other expenses we get the earnings before interest and taxes (EBIT), then the difference between EBIT and interest cost is earnings before the tax (EBT). Finally deducts the tax, we get the net profit (EAT).

Figure 2.2 Basic structure of income statement

Name of Company

Income Statement

During the Period ended ……

Descriptions	Rs.	Rs.
Sales	******	
Sales Return/Discounts/Allowances etc.	(****)	
Net Sales		*******
Cost of Goods/Sales/Services Sold		(*****)
Gross Profit/Loss		*****
Commercial Expenses:		
Selling Expenses	********	
Administrative Expenses	********	
Operating Profit		****
Other Income		****
Other Expenses		(***)
Earnings Before Interest and Taxes (EBIT)		*****
Financial Charges		(****)
Earnings Before Tax (EBT)		*****
Tax		(***)
Net Profit		******
Dividend		******
Add to Retained Earning		******

Source: [10]

2.2.3 Cash flow statement

Cash flow statement is a statement shows the cash inflow and outflow due to the daily activities operated by the company. The cash flow statement is helpful to the investors to understand how a company's operations are running, where is the source of money and how the company use the money. Cash flow statement have three components, they are operating activities, investing activities and financing activities. [5]

Figure 2.3 Basic structure of cash flow statement

	Notes	2014 £000
Operating activities		
Profit for the year		3,303
Finance income		(36)
Finance expense		32
Depreciation		431
Amortisation of intangible assets		460
Income tax charge		898
Share based payment charges		315
Operating cash inflow before changes in working capital		5,403
Movement in inventories		(27)
Movement in trade and other receivables		(94)
Movement in trade and other payables		1,080
Cash generated from operations		6,362
Finance income		36
Finance expense		(32)
Income tax paid		(649)
Net cash flow from operating activities		5,717
Investing activities		
Purchase of plant and equipment		(446)
Acquisition of subsidiaries	3	(2,886)
Net cash flow used in investing activities		(3,332)
Financing activities		
Dividends paid	7	(191)
Proceeds from exercise of share options		313
Hire purchase repayments		(120)
Net cash flow from/(used in) financing activities		2
Net increase/(decrease) in cash and cash equivalents		2,387
Effect of exchange fluctuations		(38)
Cash and cash equivalents at the beginning of the year		6,571
Cash and cash equivalents at the end of the year		8,920

Source: [11]

Operating activities are the daily activities of a company involved in producing and selling its product, generating revenues, as well as general administrative and

maintenance activities. The operating income is the difference between operating revenues and operating expenses.

Cash flow from investing activities is one of the sections on the cash flow statement that reports how much cash has been generated or spent from various investment-related activities in a specific period. Investing activities include purchases of physical assets, investments in securities, or the sale of securities or assets.

Cash flow from financing activities shows the net flows of cash that are used to fund the company. Financing activities include transactions involving debt, equity, and dividend, it provides investors with information about a company’s financial strength and how well a company's capital structure is managed.

2.3 Common-size analysis

The common-size analysis can be divided into two parts, the horizontal analysis and vertical analysis. vertical analysis refers to compare the items in financial statement in a specific period, for example, it can compare the proportion of different items on the basis of total assets. On the contrary, horizontal analysis refers to compare the similar line item in different financial period.

2.3.1 Horizontal analysis

Horizontal analysis method refers to a financial analysis method that compares the information reflecting the financial status of an enterprise during the reporting period with the information reflecting the financial status of the enterprise in different periods, and studies the development and change of the enterprise's operating performance or financial status. The basic point of horizontal analysis is to compare the data of the same item in different periods of report resources. There are two types of horizontal analysis: absolutely comparison and percentage comparison. In

horizontal analysis, it usually computes the increase or decrease (in absolute or percentage terms) of each item from prior period.

$$Absolute\ change = U_t - U_{t-1} \quad (2.1)$$

$$Percentage\ change = (U_t - U_{t-1}) / U_{t-1} \quad (2.2)$$

Where U_t is the value of current period, U_{t-1} is the value of the prior period.

Horizontal analysis method can be helpful for the company to evaluate the changes of their financial data, then adjust their strategies.

2.3.2 Vertical analysis

Vertical analysis can be used in the analysis of financial data. In a financial statement, the data of the items in the table are compared with the total to obtain the necessary and changes of the item in the total. The steps of the vertical analysis method include: firstly, calculate the proportion of each item in the table in the total, then determine the importance of the item in the report based on the proportion, and finally compare the proportion with the data of the base period or the previous year to observe the change trend.

$$Proportion = \frac{amount\ of\ individual\ item}{amount\ of\ total\ items} \quad (2.3)$$

We can figure out the difference of horizontal analysis and vertical analysis, for horizontal analysis, the company compares the financial statements of different financial periods. But for vertical analysis, the company compares the financial statement figures for a specific period.

2.4 Financial ratio analysis

Ratio analysis is a quantitative analysis which is used to analyze a company's liquidity, operating efficiency, and profitability by comparing information contained in financial

statements. Ratio analysis is the basis of fundamental analysis, it usually conducts analysis with financial data from current and historical financial statements. With the help of these data, it can evaluate the condition and performance of the firm. It can reflect the relationship between two factors, that the factors may affect the performance of the company. What's more, it can also indicate the growth and loss of a firm by compare the data from the statement.

Common ratio analysis includes four categories: Liquidity ratio, Solvency ratio, Profitability ratio, Activity ratio. Liquidity means the ability to convert an asset into cash, liquidity ratio measures the ability of a company to convert its assets into cash to pay off its liability. Solvency ratio is so-called financial leverage ratio, it measures a company's ability to pay off its long-run liability. Profitability ratio measures the ability of a company to obtain profit form the general operation, it includes the investment, the issuance of securities and so on. Activity ratio, it also can be called efficiency ratio, it measures how well the company can manage its general activities efficiently, and ow efficiently a company can control its assets and cash flows so that can achieve profit maximization.

2.4.1 Liquidity ratio

Liquidity ratio measures a company's ability to fulfill its short-term liability. Common liquidity ratios include the current ratio, quick ratio and cash ratio.

Current ratio reflects how quick the company can convert its current assets such as cash, inventories and accounts receivable into cash to pay off its current liability, which maturity is less than 1 year. The higher the ratio, the higher level of liquidity, which means the company have the ability to meet the short-term liability. On the contrary, the lower the ratio, the lower level of the liquidity, which means lower ability to meet the current liability. Following is the formula of current ratio:

$$Current\ ratio = \frac{current\ assets}{current\ liabilities} \tag{2.4}$$

In this formula, the current assets mean the assets with short life which include cash, inventories and accounts receivable. The current liabilities mean the debts should be paid off within one year. Also, this formula has limitation, it's not useful to compare two companies in different industry, because businesses differ substantially between industries, so comparing the current ratios of companies across different industries may not lead to productive insight.

Cash ratio, only the highly marketable short-term securities and cash are used to be calculated in this ratio. It measures the company's ability to pay off the current liability with the marketable securities and cash. When the cash ratio is too high, it isn't a absolutely good thing for the company, it means you can not only pay off your short-term debt, but also means the company has too much cash in hand, they cannot generate profit for the company, which may result in high alternative costs, it isn't efficient. Following is the formula of cash ratio.

$$Cash\ ratio = \frac{(cash + marketable\ securities)}{current\ liabilities} \tag{2.5}$$

Quick ratio expresses the quick assets in relation to the current liability. It removes the disadvantages of current ratio, in current ratio, we assume that the accounts receivable and inventories are liquid, but in fact, these two factors cannot be always liquid, the company would probably not be able to sell all of its inventories quickly. The quick ratio includes only the most liquid assets, which excludes the effect of inventory. So in some special situation, the quick ratio can be more suitable than the current ratio. Following is the formula of quick ratio.

$$Quick\ ratio = \frac{(current\ asset - inventory)}{current\ liabilities} \tag{2.6}$$

Cash conversion cycle (CCC) measures how many days it takes for a company to convert its investments in inventory and other resources into cash flows from sales. We can also understand it as how long each net input dollar is tied up in the production and sales process before it gets converted into cash received. This ratio

takes into account how much time the company needs to sell its inventory, how much time it takes to collect receivables, and how much time it has to pay its bills without incurring penalties.

$$CCC=DIO+DSO-DPO \tag{2.7}$$

Where DIO=Days of inventory outstanding, which means days sales of inventory, the lower of level of DIO the better, it indicates the company can sale its inventories quickly. And the formula is: DIO= $\frac{Avg.Inventory}{COGS} \times 365$ Days. The Avg. Inventory = $\frac{1}{2}$(Beginning inventory + Ending inventory) , COGS means cost of goods sold.

DSO=Days sales outstanding, it represents how long it takes to collect the cash generated from the sales. A lower level is better, which indicates that the company is able to collect capital in a short time. The formula is : DSO= $\frac{Avg.\,Accounts\,Receivable}{Revenue\,Per\,Day}$

Where the Avg. Accounts Receivable= $\frac{1}{2}$ (Beginning AR + Ending AR)

DPO=Days payable outstanding, it focuses on the current outstanding payable for the business. it represents how many days it takes to pay off those obligations. A higher DPO level is better. It indicates the company can hold cash longer, which increases its investment potential. The formula is: DPO= $\frac{Avg.\,Accounts\,Payable}{COGS\,Per\,Day}$, where the Avg. Accounts Payable= $\frac{1}{2}$ (Beginning AP + Ending AP), COGS=Cost of Goods Sold.

2.4.2 Solvency ratio

Debt ratio expresses the total debts in relation to the total assets, it measures the percentage of how much assets are financed by debts. This ratio can indicate the degree of safety for a debtor to lend money. In general, the higher the ratio, the lower

level of solvency of a company, which also means higher financial risk. It may influence the credit of the company, and high debt ratio can lead to negative effects to the long-term development of the company, what's worse, it can result in insolvency and bankrupt. Following is the formula of debt ratio:

$$Debt\ ratio = \frac{total\ debts}{total\ assets} \tag{2.8}$$

Additionally, if you want to make further analysis about the specific structure of debt, you can calculate the **Long-term debt ratio** and the **Current debt ratio**. The long-term debt ratio indicates the percentage of the company's assets financed with long-term liabilities. The Current debt ratio indicates the percentage of the company's assets financed with short-term liabilities. Similarly, the higher the ratio, the lower level of the solvency, the higher the risk.

$$Long\text{-}term\ debt\ ratio = \frac{long-term\ debt}{total\ assets} \tag{2.9}$$

$$Current\ debt\ ratio = \frac{short-term\ debt}{total\ assets} \tag{2.10}$$

Debt-to-equity ratio reflect the relationship between the total debt and equity, it can be used to evaluate the how much leverage a company is using. The higher the ratio, the higher risk to the shareholders. It means the shareholders' benefits are weakly guaranteed.

$$Debt\text{-}to\text{-}equity\ ratio = \frac{total\ debts}{total\ equity} \tag{2.11}$$

Debt-to-capital ratio measures a company's financial leverage. It can be calculated by taking the company's debt, both short-term and long-term liabilities and dividing it by the total capital. And total capital is all debt plus shareholders' equity, which may include items such as common stock, preferred stock, and minority interest. The formula is:

$$Debt\text{-}to\text{-}capital\ ratio = \frac{total\ debts}{total\ equity + total\ debts} \quad (2.12)$$

The debt-to-capital ratio can let managers investors know a company's financial structure better and make decision that whether the company is suitable for investment or not. Additionally, the higher the debt-to-capital ratio, the riskier the company. However, the debt-to-capital ratio may be affected by the accounting rules a company uses. Thus, it is very important to be certain the correct values are used in the calculation.

Interest coverage ratio which is also called Times interest earned ratio (TIE) expresses the earnings before interest and tax in relation to interest payments. It measures the company's ability to pay off the interest with the earnings before interest and tax. Higher interest coverage ratio indicates higher level of solvency.

$$Interest\ coverage\ ratio = \frac{Earnings\ before\ interest\ and\ tax}{interest\ payments} \quad (2.13)$$

Fixed-charge coverage ratio measures a company's ability to cover its fixed expenses, such as debt payments, interest expense and equipment lease expense. It is a important indicator to banks when they make decisions whether to lend money to a business or not. The formula is:

$$FCCR = \frac{EBIT + FCBT}{FCBT + i} \quad (2.14)$$

Where the EBIT means the earnings before interest and taxes, the FCBT means fixed charges before taxes, the I mean interest.

About the calculation, firstly we need to find out the earnings before interest and taxes (EBIT) from the company's income statement and then adds back interest expense, lease expense, and other fixed charges. Next, the adjusted EBIT is divided by fixed charge before taxes plus interest. For example, if the ratio is 1.8, it shows that a company can cover every $1 of debt with $1.8 amount of earning, it means the

company is in good condition. The fixed-charge ratio is very important to lenders to analysis the company's ability to repay the debt. The higher the ratio the better, because a low ratio often indicates a drop in earnings and in this situation, the lenders will be not willing to lend the money, they may face higher risk.

2.4.3 Profitability ratio

The profitability ratio can reflect whether a company can generate profit or loss over a period of time. In general, the higher the ratio, the more competitive the company. It can be a essential indicator for both manager and investor.

Gross profit margin (GPM) is generally expressed as percentage. It is calculated as gross profit divided by total revenues. The gross profit equals to the difference between the total revenues and cost of goods sold. It measures the company's financial performance model by revealing the amount of money left over from sales of goods after minus the cost of goods sold. It also measures the company's ability to provide better goods and service than its competitors. Generally, the higher the ratio, the better the performance of a company to generate profit.

$$Gross\ profit\ margin = \frac{gross\ profit}{total\ revenues} \tag{2.15}$$

Net profit margin expresses the net profit in relation to the total revenues. The net profit is known as EAT which means the earnings after all the interest and tax are paid. It measures the profitability of a company's sales after all interest and taxes have been deducted. Similarly, the higher the ratio, the better management of a company.

$$Net\ profit\ margin = \frac{net\ profit}{total\ revenues} \tag{2.16}$$

Operating profit margin expresses the operating profit in relation to total revenues. The operating profit is regarded as the earnings after all the cost of goods sold are paid but before the interest and tax. It measures the profitability of a company's sales after paying the operating cost but before the tax and interest. Usually the higher the

operating profit margin indicates the company is more competitive to control operating cost.

$$Operating\ profit\ margin = \frac{operating\ profit}{total\ revenues} \qquad (2.17)$$

Return on asset (ROA) measures how many returns can generated by one unit of asset, It was used widely in the world to analyze the profitability of a firm. It indicates a better utilization of assets in a firm with higher level of ratio. This index can be calculated by two ways:

$$ROA = \frac{EAT}{total\ assets} \qquad (2.18)$$

$$ROA = \frac{EBIT}{total\ assets} \qquad (2.19)$$

Return on equity (ROE) indicate the ability to generate profit by one unit of equity. It measures how efficiently management is using a company's assets to crate profit. It reflects the relationship between net income (EAT) and equity. The higher the index, the more beneficial a company is.

$$ROE = \frac{EAT}{equity} \qquad (2.20)$$

Return on capital employed (ROCE) measures how a company can manage its capital efficiently, In other words, the ratio indicates how well a company is generating profits from its capital. The ROCE ratio is considered an important profitability ratio and it is useful for investors when they make investment to some companies. The formula for ROCE is:

$$ROCE = \frac{EBIT}{Capital\ Employed} \qquad (2.21)$$

Where EBIT=Earnings before interest and tax, Capital Employed=Total assets − Current liabilities

As for the calculation, there are two sectors needed to calculate return on capital employed: earnings before interest and tax and capital employed. Earnings before interest and tax (EBIT) is also called operating income, it is calculated by subtracting the cost of goods sold and operating expenses from revenues. Capital employed is the total amount of shareholders' equity and debt liabilities. In general, we calculate ROCE based on the average capital employed. The ROCE is also an important indicator to company's performance. A stable and rising number of ROCE is better for the company.

Earnings per share (EPS) is calculated as a company's profit divided by the outstanding shares of its common stock. The ratio indicates the company's profitability. The higher a company's EPS, the more profitable it is. The formula is:

$$EPS = \frac{net\ income - preferred\ dividends}{Weighted\ average\ \ common\ stocks\ outstanding} \tag{2.22}$$

To calculate a company's EPS, the balance sheet and income statement are used to find the period-end number of common shares, dividends paid on preferred stock and the net income or. It is better to use a weighted average number of common shares over the period because the number of shares can change over time.

Price-to-Earnings ratio (P/E ratio) is the ratio reflect the relationship of its current share price relative to its per-share earnings (EPS). The price-to-earnings ratio is also sometimes known as the price multiple. P/E ratios are used by investors and analysts to determine the relative value of a company's shares.

$$P/E\ ratio = \frac{price\ per\ share}{earning\ per\ share} \tag{2.23}$$

The price we can find in some finance website, and the earning per share we can find in company's earning report. A high level of P/E ratio means the company's stock is over-valued, the investors are expecting high growth rates in the future, also we should know that if a company make loss, it doesn't have P/E ratio.

Price-to-book ratio (P/B ratio) are used to compare a firm's market to book value by dividing the price per share by book value per share (BVPS). The book value of an asset is equal to its carrying value on the balance sheet. Book value is also the net asset value of a company which is calculated as total assets minus intangible assets (copy rights, goodwill) and liabilities.

$$P/B\ ratio = \frac{Market\ price\ per\ share}{Book\ value\ per\ share} \tag{2.24}$$

A lower P/B ratio means the stock is undervalued. It also means the price is cheap, it's safer, it has great potential to growth.

Dividend yield ratio measures how many cash dividends are distributed to common shareholders relative to the market value per share. The dividend yield ratio can show how the investor's investment in stock can generate cash flows or profit because of the appreciation of stock value. When investors invest their money in stocks, they earn a return either by dividends or stock appreciation. Some companies choose to pay dividends to investors, these shares are often called income stocks. Other companies choose reinvest this money in the business. These shares are often called growth stocks. Investors can use this ratio to evaluate their return on the stock.

$$Dividend\ yield\ ratio = \frac{Cash\ dividends\ per\ share}{market\ value\ per\ share} \tag{2.25}$$

Where the cash dividends per share are often reported on the financial statements, but they are also reported as gross dividends distributed. In this case, you'll have to divide the gross dividends distributed by the average outstanding common stock during that year. The market value per share is usually calculated by looking at the open stock exchange price as of the last day of the year or period. A company with a high dividend yield ratio means it pays its investors a large dividend compared to the fair market value of the stock. And the investors get a high return on the stock.

Retention ratio is the proportion of earnings remain in the business after paying for the dividends to the shareholders as retained earnings. The retain earnings are retained to support the future growth of the company, rather than being paid out as dividends. It is opposite to the payout ratio, which measures the percentage of profit paid out to shareholders as dividends. The retention ratio is also called the plowback ratio.

$$Retention\ ratio = \frac{retained\ earnings}{net\ income} \tag{2.26}$$

Where the retained earnings = net income – dividends distributed. In order to calculate the ratio, the retained earnings can be found in balance sheet, and the net income can be found in income statement. When the company make profit, they can pay the profit to shareholders as dividends, they can also reinvest in the business for growth. But we need to know that different kind of companies have different level, in general, new companies need money to development so they don't pay dividends so the retention ratio is high, but in established companies, they usually pay out a part of earnings as dividends, so the ratio will be lower.

2.4.4 Activity ratio

Activity ratio can be also called assets utilization ratio or operating efficiency ratios, it measures a firm's ability to convert different accounts within its balance sheet into cash or sales. It can as well as reflects the operation efficiency of a firm and the manager's ability to manage the company. Always the circle of transformation shorter the more efficient.

Average collection period (ACP) are in the situation that the company sales products on credit. It is a period measures how many days the company can receive the money from the customers. It is an average number and refers to as the days sales in accounts receivable. The average collection period is important to companies, it can ensure they have enough cash in hand to pay off their debts. Usually the lower ACP the better, it means the company can collect the payment faster.

$$ACP = \frac{account\ receivable}{revenues} * 360 \quad (2.27)$$

Accounts receivable turnover (ART) is the ratio between the revenue from sales on credit and the average balance of accounts receivable in a certain period of time. It measures an enterprise accounts receivable turnover speed and management efficiency. A company's accounts receivable plays an important role in current assets. If the company can receive the payment in time, the company's capital efficiency can be greatly improved. It describes the average number of times during a given period that a company's accounts receivable is converted into cash. Generally speaking, the higher the accounts receivable turnover, the better, indicating that the company can quickly collect the payment and the stronger solvency.

$$ART = \frac{revenues}{accounts\ receivable} \quad (2.28)$$

Inventory turnover is expressed as an enterprise's operating cost (cost of goods sold) to its average inventory balance over a given period. It is used to reflect the turnover speed of inventory, which means the liquidity of inventory and the reasonable amount of inventory funds. It can improve the use efficiency of funds and enhance the short-term solvency of enterprises. Inventory turnover is one of the important indicators of enterprise operation capability analysis, which is widely used in enterprise management decision-making. Generally speaking, the faster the speed of inventory turnover, the lower the level of inventory occupation, the stronger the liquidity, the faster the speed of inventory conversion into cash or accounts receivable.

$$Inventory\ turnover = \frac{operating\ cost}{average\ inventory} \quad (2.29)$$

The operating cost is the cost of goods sold, and average inventory =(beginning inventory + ending inventory) / 2.

Total assets turnover reflects the relationship between total revenue and average total assets. The turnover rate of total assets is a very helpful to assess the operation

efficiency of enterprise assets, which not only reflects the transfer speed of all assets from input to output over the enterprise operation period, but reflects the quality of management and utilization efficiency of the enterprise. In general, the higher the ratio, the faster the turnover speed of the total assets of the enterprise. The stronger the sales ability, the higher the asset utilization efficiency.

$$Total\ assets\ turnover = \frac{total\ revenue}{average\ total\ assets} \tag{2.30}$$

Where the average total assets = (beginning assets + ending assets) / 2.

Working capital turnover ratio is a ratio that measures how efficiently a company is using its working capital to support a given level of sales. It shows the relationship between the funds used to finance a company's operations and the revenues a company make.

$$Working\ capital\ turnover\ ratio = \frac{Total\ revenues}{Average\ working\ capital} \tag{2.31}$$

Where the average working capital is equal to the difference between current assets and current liabilities. A high turnover ratio shows the company's operation is efficient, it can use the short-term assets and liabilities efficiently to support sales, and it can earn money on sales relative to one unit of working capital used. In contrast, a low ratio may indicate that a business is investing in too many accounts receivable and inventory to support its sales, which may result in a lot of debts and excessive inventories.

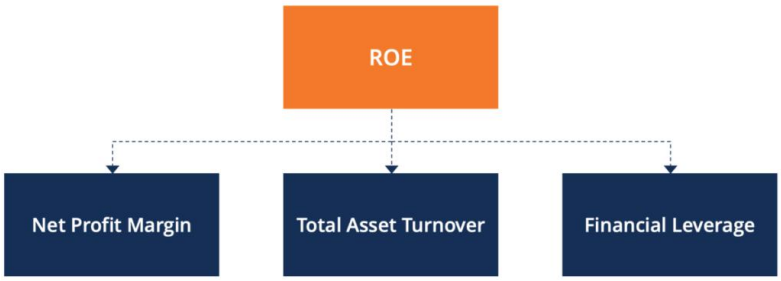
2.5 Dupont analysis

2.5.1 Framework of Dupont analysis

Dupont analysis is a method used to evaluate the profitability and ROE of enterprises. It is used to analyze the financial status of firms through the relationship between the

main financial ratios. The basic idea of Dupont analysis method is to divide the ROE of enterprises into multiple sectors, which is helpful for in-depth analysis. The most remarkable characteristic of the Dupont model is that several ratios used to evaluate the operating efficiency and financial status of enterprises are organically combined according to their internal relations to form a complete index system, which is finally comprehensively reflected by the rate of ROE. In this way, we can figure out which sector influence the ROE most. Following is the formula:

Figure 2.4 The formula of ROE of Dupont analysis



Source: [12]

According to the figure, we can divide the ROE into three part: net profit margin, total asset turnover and financial leverage. We can decompose the ROE in depth.

$$ROE = \frac{net\ income}{equity} = \frac{net\ income}{revenues} \times \frac{revenues}{total\ assets} \times \frac{total\ assets}{equity} \qquad (2.32)$$

Where the $\left(\frac{net\ income}{equity}\right)$ is net profit margin, $\left(\frac{revenues}{total\ assets}\right)$ is assets turnover,$\left(\frac{total\ assets}{equity}\right)$ is financial leverage.

The ROE can be decomposed into a more complex formula, the net profit margin can be defined as:

$$\frac{Net\ income}{Equity} = \frac{net\ income}{EBT} \times \frac{EBT}{EBIT} \times \frac{EBIT}{revenues} \qquad (2.33)$$

Where $\frac{net\ income}{EBT}$ is tax burden, $\frac{EBT}{EBIT}$ is interest burden, $\frac{EBIT}{revenues}$ is EBIT margin.

All in all, the ROE can be calculated by:

$$ROE = \frac{net\ income}{EBT} \times \frac{EBT}{EBIT} \times \frac{EBIT}{revenues} \times \frac{revenues}{total\ assets} \times \frac{total\ assets}{equity} \tag{2.34}$$

2.5.2 Method for quantification of influence

In order to assess the effect of each factor relative to the ROE, we choose the method of gradual changes.

$$\begin{aligned} \Delta X a_1 &= \Delta a_1 \times a_{2,0} \times a_{3,0} \\ \Delta X a_2 &= a_{1,1} \times \Delta a_2 \times a_{3,0} \\ \Delta X a_3 &= a_{1,1} \times a_{2,1} \times \Delta a_3 \end{aligned} \tag{2. 35}$$

Where X is basic ratio and ΔX is absolute change in the basic ratio. a is component ratio. Δa is absolute change in the component ratio. $\Delta X a_1$ is absolute change in the basic ratio caused by the change in the first (a_1) component ratio.

With Dupont analysis method, we can make further assessment on the ROE, it is a effective way to find out the factor which effect the ROE most, we can make comparison after calculating the results.

3. Profile of Selected Company

In this chapter, I will introduce the profile of Microsoft, which will focus on the history of Microsoft, the main products and services and the strengths as well as the challenges of Microsoft. From this chapter, we can know Microsoft better, and it is useful for the calculation, we can give more helpful suggestions according to the situation of Microsoft.

3.1 History of Microsoft

Microsoft is an American technology companies, it is also the forerunner of the world's Personal Computer software development. Microsoft was founded in 1975 by Bill Gates and Paul Allen, the company headquarters is set up in Redmond, Washington. It develops, manufactures, licenses, supports, and sells computer software, consumer electronics, personal computers, and related services. Its best-selling software products are the Microsoft Windows operating systems and Microsoft Office series of software, it is the world’s largest computer software provider.

Microsoft was founded in 1975 by Bill Gates and Paul Allen. In 1983, Microsoft signed a contract with IBM to provide the BASIC interpreter for the IBM PC, as well as the operating system. By 1984, Microsoft had sales of more than $100 million. Microsoft went on to develop software for computers from IBM, apple and radio equipment. As Microsoft grows, Microsoft and IBM have become competitors in many ways. On July 29, 2009, yahoo and Microsoft announced that they had reached an agreement to cooperate in Internet search and Internet advertising. On May 10, 2011, Microsoft announced the acquisition of Skype for $8.5 billion. On September 3, 2013, Microsoft announced that it would take over Nokia's business and Microsoft will also license patents related to location technology to Nokia. On July 29, 2015, Microsoft released a new generation of operating system Windows 10. In September

2018, Microsoft announced that it will provide ROS support, the robotic operating system, to Windows 10. Previously the operating system only supported Linux, but now Microsoft is building ROS for Windows. [6]

From the history of Microsoft, we can see that it has experienced a long time for development, I think the most important point for the success of Microsoft is innovation. Microsoft has made a lot of innovations in its software services. And it also made expansion during its history, it is good for the future development.

3.2 The SWOT of Microsoft

In order to make further analysis of Microsoft, I use the SWOT analysis to introduction. SWOT analysis is based on the internal and external competitive environment and competitive conditions, it is to figure out all kinds of main internal advantages, disadvantages and external opportunities and threats closely related to the Microsoft through investigation. “SWOT” means “Strengths” “Weaknesses” “Opportunities” and “Threats”.

3.2.1 The Strengths of Microsoft

As we all know, Microsoft is a well-known technology company, it is also the forerunner of the world's Personal Computer software development, so it has a positive brand effect in the worldwide. Additionally, Microsoft can create excellent working environment for its staff and attract top global technical talents. Microsoft concentrates on the products updates, it is important. The success of Microsoft is highly dependent on the ability to attract and retain talented employees. It hires a mix of university and industry talent worldwide. [7] And Microsoft provides good working environment, broad customer reach, scale in resources and competitive compensation as well as benefits. What’s more, Microsoft has excellent leaders and creators. They are always devoted into innovation. Microsoft couldn’t achieve such success without innovation. As we know, in the long history of development of

Microsoft, it constantly innovates to meet the needs of consumers, they have expertise to promote the new technology.

Microsoft also offers many types of products and service, it develops and supports software, services, devices, and solutions that deliver new value for customers and help people and businesses realize their full potential. It offers an array of services, including cloud-based solutions that provide customers with software, services, platforms, and content, and provides solution support and consulting services. Microsoft also deliver relevant online advertising to a global audience. Its products include operating systems, cross-device productivity applications, server applications, business solution applications, desktop and server management tools, software development tools and video games. It also designs, manufactures, and sells devices, including PCs, tablets, gaming and entertainment consoles, other intelligent devices, and related accessories.

3.2.2 The Weaknesses of Microsoft

Many of Microsoft's network and Internet related products often have security problems. In 2002, many of Microsoft's network and Internet related products were widely discussed after many security holes appeared. Some malicious programmers constantly use the security holes of Microsoft software to destroy, such as creating and publishing worms, viruses and Trojans that can consume system resources or destroy data through the Internet. The general targets of these damages are Microsoft Outlook and Outlook Express email client, Internet information server (IIS) web server, and SQL Server database server software. Microsoft argues that because of its leading position in the Internet software market, naturally Microsoft's products will be more attacked because they are widely used. Some retort that these attacks also target products that Microsoft does not have an advantage, indicating that Microsoft's products are less secure than those of its competitors. There are also security holes and cracks in the security framework of Internet Explorer, sometimes going through some websites will be installed automatically, which is known as "forced installation".

Of course, Internet Explorer is not just a problem for one user, but for most users. They affect many computers and show that security problems are everywhere. [8]

Microsoft can quickly provide practical functions according to the trend, but it is rarely able to lead the trend and has no good innovative ideas. And Microsoft's products rely heavily on software reuse, resulting in complex dependency between different software packages, which makes it inconvenient for users to use.

3.2.3 The Opportunities of Microsoft

Microsoft has lots of consumers, they are interested in the new products and services. To satisfy the needs of its consumers, Microsoft must update its products and services. As we all know, Microsoft is a well-known company in the world, China has a large number of consumers and a large market demand. After nearly 30 years of continuous development since 1992, Microsoft has now become one of the largest foreign investment company in China. This not only benefits from Microsoft's continuous listening to the needs of Chinese, continuous adjustment of Microsoft's system according to China's local needs, but also benefits from Microsoft's deep participation in the process of China's information development. Through cooperation with China's industrial partners, more and more technologies, products and services are entering China and making continuous progress. At present, Microsoft has established long-term and stable partnership with more than 17000 companies in China. This is also help Microsoft to develop in China.

The government supports its technology development. Huawei is currently a leader in 5G infrastructure market, it provides better technology at a more affordable price than competitors such as Nokia and Ericsson. In addition to Huawei's domestic market China, several countries including Germany have also adopted Huawei's 5G infrastructure. Considering potential security risks, the US government has banned Huawei from providing 5G infrastructure to the US telecom network. To make up for

this move, the US government is currently working with Microsoft, Dell, AT & T and other companies to develop Huawei's 5G alternative products.

3.2.4 The Threats of Microsoft

With the development of technology, Microsoft has faced many competitors. Competitors to Office include software and global application vendors, such as Apple, Cisco Systems, Facebook, Google, IBM, Proofpoint, Slack, Zoom, and numerous web-based and mobile application competitors as well as local application developers. Apple distributes versions of its pre-installed application software, such as email and calendar products, through its PCs, tablets, and phones. Slack provides teamwork and collaboration software. Zoom offers videoconferencing and cloud phone solutions. Web-based offerings competing with individual applications have also positioned themselves as alternatives to our products and services.

Windows faces competition from various software products and from alternative platforms and devices, mainly from Apple and Google. Devices compete with various computer, tablet, and hardware manufacturers who combine the high-quality industrial design with innovative technologies. These manufacturers, many of which are also current or potential partners and customers, include Apple and Windows OEMs. The gaming platform competes with console platforms from Nintendo and Sony, both of which have a large, established base of customers. Microsoft also competes with other providers of entertainment services through online marketplaces. Its video games competitors include Electronic Arts and Activision Blizzard. Xbox Live and cloud gaming services face competition from various online marketplaces, including those operated by Amazon, Apple, and Google. Our search business competes with Google and other websites, social platforms like Facebook.

We can see that even though Microsoft is a huge company in the world, it also faces lot of challenges and threats. Sometimes, more opportunities also mean more challenges and risks. Microsoft competes by providing powerful, flexible, secure,

integrated industry-specific, and easy-to-use productivity and collaboration tools and services that create comprehensive solutions. Microsoft must aggregate the technology and talent to constantly upgrade its products and services to satisfy the needs of consumers. [7]

We can see that even though Microsoft is a huge company in the world, it also faces lot of challenges and threats. Sometimes, more opportunities also mean more challenges and risks. Microsoft competes by providing powerful, flexible, secure, integrated industry-specific, and easy-to-use productivity and collaboration tools and services that create comprehensive solutions. Microsoft must aggregate the technology and talent to constantly upgrade its products and services to satisfy the needs of consumers. [7]

4. Evaluation of the Financial Situation of the Selected Company

In this chapter, I will use some financial methods to make evaluation to the selected company, as I have mentioned previously, the methods include common-size analysis, financial ratios analysis and Dupont analysis.

4.1 Common-size Analysis of Microsoft

To conduct the common-size analysis, I divide it into two parts, which are vertical analysis and horizontal analysis. we also need the data of the balance sheet and the income statement from 2015 to 2019.

4.1.1 Common-size Analysis of Balance Sheet

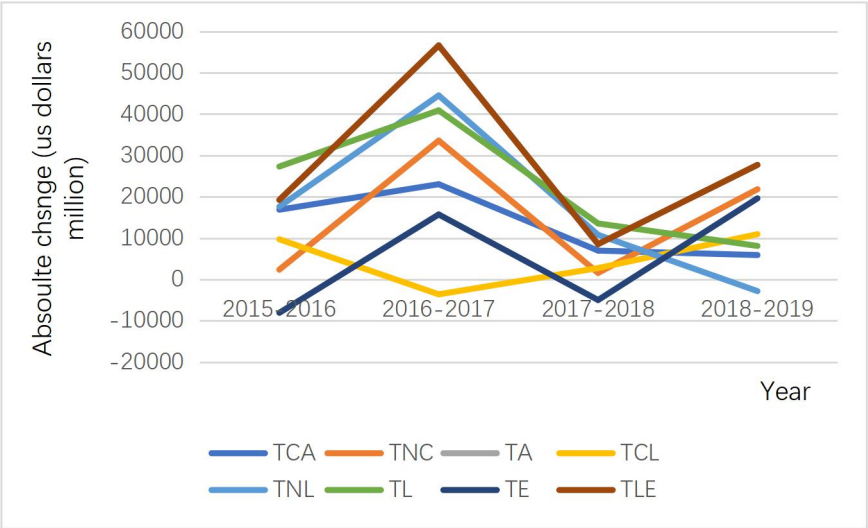
Horizontal analysis

Table 4.1 Absolute and Relative Change in Balance Sheet (2015-2019)

	2015-2016		2016-2017		2017-2018		2018-2019	
	Absolute change	Relative change	Absolute change	Relative change	Absolute change	Relative change	Absolute change	Relative change
TCA	16,863	13.73%	23,036	16.49%	6,966	4.28%	5,890	3.47%
TNC	2,359	4.57%	33,582	62.15%	1,570	1.79%	21,818	24.46%
TA	19,222	11.02%	56,618	29.23%	8,536	3.41%	27,708	10.70%
TCL	9,710	19.56%	-3,612	-6.09%	2,743	4.92%	10,932	18.69%
TNL	17,598	39.33%	44,516	71.41%	10,786	10.09%	-2,836	-2.41%
TL	27,308	28.93%	40,904	33.61%	13,529	8.32%	8,096	4.60%
TE	-8,806	-10.10%	15,714	21.83%	-4,993	-5.69%	19,612	23.71%
TLE	19,222	11.02%	56,618	29.23%	8,536	3.41%	27,708	10.70%

Source: Own calculation

Figure 4.1 Absolute Change in Balance Sheet (2015-2019)



Source: Made by Excel

In the Table 4.1, TCA means total current assets, TNC means total non-current assets, TA means total assets, TCL means total current liabilities, TNL means total non-current liabilities, TL means total liabilities, TE means total equity, TLE means total liabilities and equity.

Firstly, let's talk about the relative change. According to the table, we can see that the growth rate of total assets fluctuates a lot from 2016 to 2017, the relative change of total assets reaches the highest level which is 29.23%. The huge growth of total non-current assets results in this situation. The total non-current assets increased by 62.15% from 2016 to 2017. However, from 2017 to 2018 the growth rate of total assets reached the lowest level of 3.41%, also the growth rate of non-current assets is lowest, it only increased by 1.79% from 2017 to 2018.

As for the total equity and liabilities, the growth rate of total liabilities is decreasing from 2017 to 2019, it doesn't mean the total liabilities is reducing, it reflects the total liabilities is increasing slowly, but from 2016 to 2017, the growth rate is the highest, the growth of total non-current liabilities contributed to the change. Though the growth rate of total current liabilities became the lowest level, the total non-current

liabilities increased by 71.41% from 2016 to 2017. It means the total assets increased faster. And from 2018 to 2019, the growth rate of total non-current liabilities is -2.41%, it means this item is decreasing, that's why the growth rate of total assets reached the lowest level of 4.6%. what 's more, the growth rate of total equity fluctuates a lot, during the period from 2018 to 2019, the growth rate of total equity is the highest, from 2015 to 2016, the growth rate is the lowest.

As for the absolute change, from this figure we can see that it fluctuates a lot from 2015 to 2019. It is obvious that from 2016 to 2017, except the total current liabilities, other items increased greatly. The total assets and the total liabilities and equity increased by 56618 million dollars during the period, from 193,694 to 250,312 million dollars. In this period, the total non-current liabilities increased a lot, the growth of long-term debt contributed to the change, it increased from 40783 to 76073 million dollars. However, from 2017 to 2018, all the items rise slowly, the absolute change of total equity is lower than zero, it means the total equity decreased in this period from 87711 to 82728 million dollars in this period. Then from 2018 to 2019, these items began to grow faster except the total non-current liabilities, which reduced by 2836 million dollars during this period.

Vertical analysis

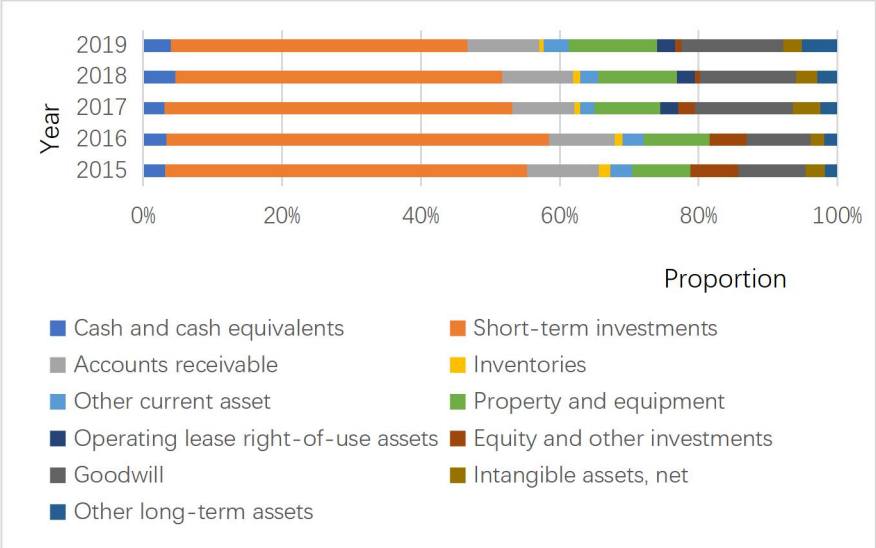
Vertical analysis of the Microsoft in balance sheet needs to evaluate the structure of the assets and capital. Firstly, we should calculate the proportion of each item in the balance sheet in the total from 2015 to 2019, then compare the proportion with the data of the base period or the previous year to observe the change trend.

Table 4.2 The Proportion of Each Item to Total Assets in Balance Sheet (2015-2019)

	2015	2016	2017	2018	2019
Cash and cash equivalents	3.21%	3.36%	3.06%	4.62%	3.96%
Short-term investments	52.12%	55.10%	50.06%	47.06%	42.74%
Accounts receivable	10.26%	9.44%	8.96%	10.23%	10.30%
Inventories	1.66%	1.16%	0.87%	1.03%	0.72%
Others current asset	3.13%	3.04%	2.04%	2.61%	3.54%
Property and equipment	8.44%	9.48%	9.48%	11.38%	12.73%
Operating lease right-of-use assets	-	-	2.62%	2.58%	2.58%
Equity and other investments	6.91%	5.39%	2.41%	0.72%	0.92%
Goodwill	9.71%	9.23%	14.03%	13.79%	14.67%
Intangible assets, net	2.77%	1.93%	4.04%	3.11%	2.70%
Other long-term assets	1.79%	1.88%	2.43%	2.88%	5.14%

Source: Own calculation

Figure 4.2 The Proportion of Each Item to Total Assets in Balance Sheet (2015-2019)



Source: Made by Excel

On the whole, the structure of assets during the 5 years is relatively stable. The short-term investment accounts for a large proportion in total assets, which takes up about 50% in 2015, it is same in 2016 and 2017. Even though in 2018 and 2019 the proportion of this item is lower than 50%, it is still the largest part in assets. Then is the goodwill, it takes up about 10% in assets, from 2015 to 2019, its proportion fluctuates to increase. And the proportion of accounts receivable as well as the property and equipment is almost the same, additionally, they are stable during the 5 years. Other items accounts for a small proportion in total assets, in which the inventories take up the smallest part in assets of about 1%.

Table 4.3 The Proportion of Each Item to Total Assets in Balance Sheet (2015-2019)

	2015	2016	2017	2018	2019
Accounts payable	3.78%	3.56%	2.95%	3.33%	3.27%
Short-term debt	2.86%	6.66%	4.19%	0.54%	0.53%
Current portion of long-term debt	1.43%	0.01%	0.46%	1.61%	2.04%
Income taxes	0.35%	0.30%	0.29%	0.82%	1.98%
Other current liabilities	20.04%	20.11%	14.37%	16.29%	16.41%
Long-term debt	15.94%	21.06%	30.39%	27.91%	23.26%
Long-term unearned revenue	1.20%	3.33%	1.06%	1.47%	1.58%
Deferred income taxes	0.74%	0.76%	2.29%	0.21%	0.08%
Other long-term liabilities	7.76%	7.04%	8.95%	15.86%	15.14%
Total Liabilities	54.10%	62.83%	64.96%	68.04%	64.29%
Common stock and paid-in capital	39.24%	35.20%	27.69%	27.52%	27.40%
Retained earnings	5.21%	1.18%	7.10%	5.29%	8.43%
Accumulated other comprehensive income	1.45%	0.79%	0.25%	-0.84%	-0.12%
Total stockholders' equity	45.90%	37.17%	35.04%	31.96%	35.71%

Source: Own calculation

From this table we can see that the liabilities account for a larger part in capital of Microsoft, from 2015 to 2019, the proportion of liabilities is growing lager and lager in each year, which is over than 60%. Most importantly, the proportion of non-current liabilities become increasingly larger from 2015 to 2019.

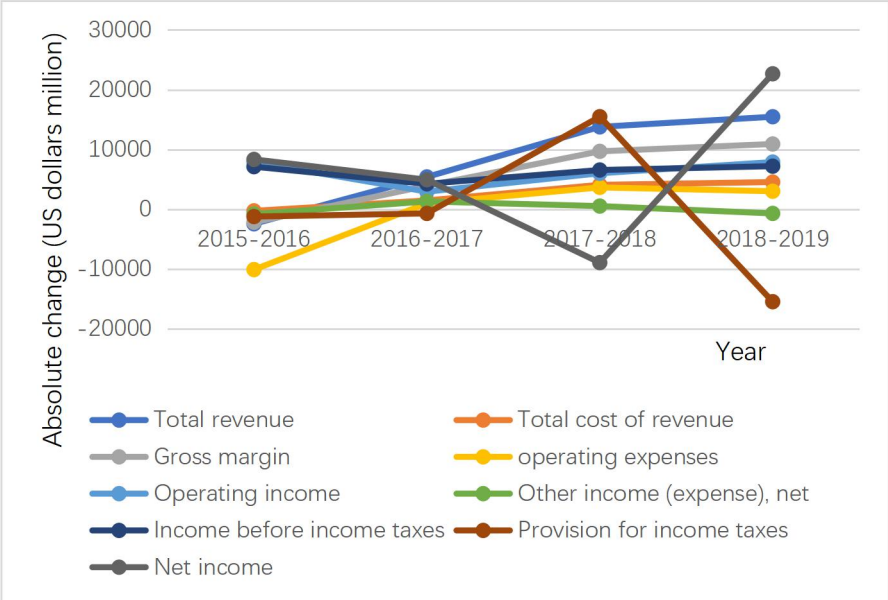
As for the shareholder's equity, the common stock and paid-in capital take up a large part in total capital, but the proportion is smaller and smaller from 2015 to 2019, from 39.24% to 27.40%, it is still the largest part in equity to the total capital. Its percentage doesn't change a lot.

4.1.2 Common-size Analysis of Income Statement

Horizontal analysis

In this part, the horizontal analysis is used to evaluate the income statement of Microsoft during the fiscal 2015 to 2019. We need calculate the absolute change and relative change of each item in the income statement.

Figure 4.3 Absolute Change of Main items in Income Statement (2015-2019).



Source: Made by Excel

Table 4.4 Absolute and Relative Change in Income Statement (2015-2019)

	2015-2016		2016-2017		2017-2018		2018-2019	
	Absolute change	Relative change	Absolute change	Relative change	Absolute change	Relative change	Absolute change	Relative change
Total revenue	-2,426	-2.59%	5,417	5.94%	13,789	14.28%	15,483	14.03%
Total cost of revenue	-258	-0.78%	1,481	4.52%	4,092	11.94%	4,557	11.88%
Gross margin	-2,168	-3.58%	3,936	6.74%	9,697	15.56%	10,926	15.17%
Operating expenses	-10,085	-23.80%	989	3.06%	3,664	11.01%	3,025	8.19%
Operating income	7,917	43.59%	2,947	11.30%	6,033	20.79%	7,901	22.54%
Other income	-785	-226.88%	1,315	-299.54%	540	61.64%	-687	-48.52%
EBT	7,132	38.54%	4,262	16.62%	6,573	21.98%	7,214	19.78%
Provision for income taxes	-1,214	-19.23%	-688	-13.49%	15,491	351.11%	-15,455	-77.65%
EAT	8,346	68.45%	4,950	24.10%	-8,918	-34.99%	22,669	136.80%

Source: Own calculation

Above all, according to the Table 4.4, the relative change of total revenue from 2015 to 2016 is negative, it means the total revenue decreased during 2015 to 2016, but it didn't reduce a lot. Then from 2016 to 2019, the total revenue was always increasing, especially from 2017 to 2018, revenue increased $13.8 billion or 14%, driven by growth across each of segments. Productivity and Business Processes revenue increased, driven by LinkedIn and higher revenue from Office. Intelligent Cloud revenue increased, primarily due to higher revenue from server products and cloud services. More Personal Computing revenue increased, driven by higher revenue from Gaming, Windows, Search advertising, and Surface, offset in part by lower revenue from Phone. The relative change of total cost of revenue is similar to the total revenue. From 2015 to 2016, the total cost of revenue is negative, then it is positive and increasing.

As for the operating expenses, from 2015 to 2016, it decreased a lot by 23.8%, so the relative change was negative. However, from 2016 to 2019, the total operating expenses were increasing and growing faster during 2016 to 2018. The operating income is always increasing, especially from 2015 to 2016, it increased greatly by 43.59%. then it grew slower from 2016 to 2018.

For the EBT, the relative change is always positive, which means the EBT was increasing during the 5 years. It can be found that the taxes fluctuate a lot, from 2015 to 2017, the relative change was negative, but from 2017 to 2018, it even increased by 351.11%. it almost increased 3 times than 2017. Then from 2018 to 2019, it reduced by 77.65%. The net income isn't stable, from 2015 to 2016 it increased a lot by 68.45%, and it increased by 24.1% from 2016 to 2017, but it started to decrease during 2017 to 2018, Because of a $13.7 billion net charge related to the Tax Cuts and Jobs Act, the net income decreased during this period, then it increased by 136.8% from 2018 to 2019. In this period net income included a $2.6 billion net income tax benefit related to intangible property transfers and a $157 million net charge related to the enactment of the TCJA, which together resulted in an increase to net income

Vertical analysis

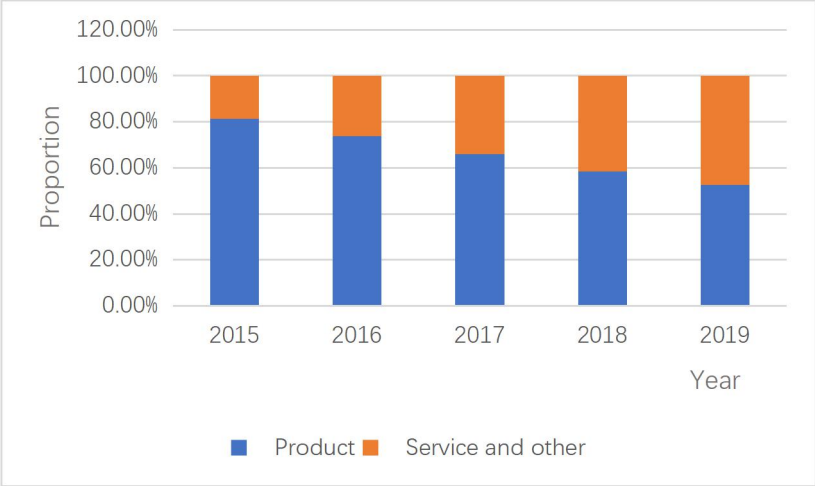
The vertical analysis of income statement is similar to the balance sheet. I divided the income statement into three main parts: the total revenue, total cost of revenue and the total operating expenses. I will analysis the structure of these three parts and draw graphs to make further analysis.

Table 4.5 Proportion of Each Item to Total Revenue. (2015-2019)

	2015	2016	2017	2018	2019
Product	81.17%	73.87%	66.08%	58.44%	52.50%
Service and other	18.83%	26.13%	33.92%	41.56%	47.50%
Total revenue	100.00%	100.00%	100.00%	100.00%	100.00%

Source: Own calculation

Figure 4.4 Proportion of Each Item to Total Revenue. (2015-2019)



Source: Made by Excel

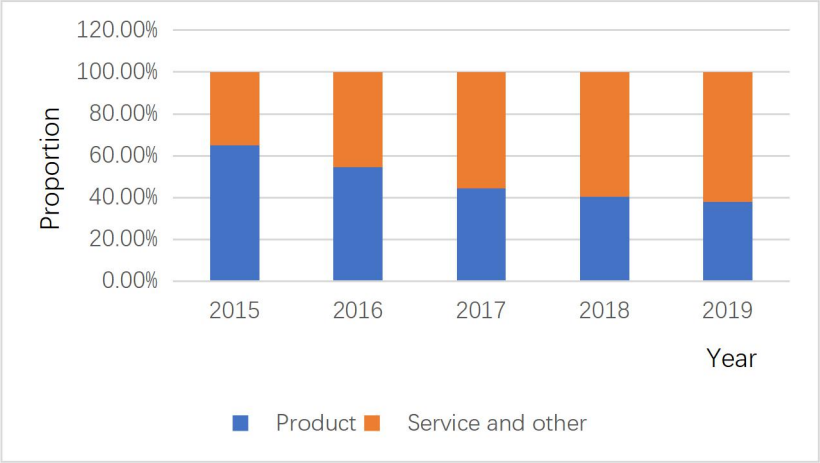
From this figure, we can find out that the proportion of product becomes smaller and smaller in total revenue, on the contrary, the service and other becomes a larger and larger part in total revenue. The proportion of product reduced from 81.17% in 2015 to 52.5% in 2019, but it still a larger part in total revenue.

Table 4.6 Proportion of Each Item in Total Cost of Revenue. (2015-2019)

	2015	2016	2017	2018	2019
Product	64.80%	54.55%	44.29%	40.21%	37.92%
Service and other	35.20%	45.45%	55.71%	59.79%	62.08%
Total cost of revenue	100.00%	100.00%	100.00%	100.00%	100.00%

Source: Own calculation

Figure 4.5 Proportion of Each Item in Total Cost of Revenue. (2015-2019)



Source: Made by Excel

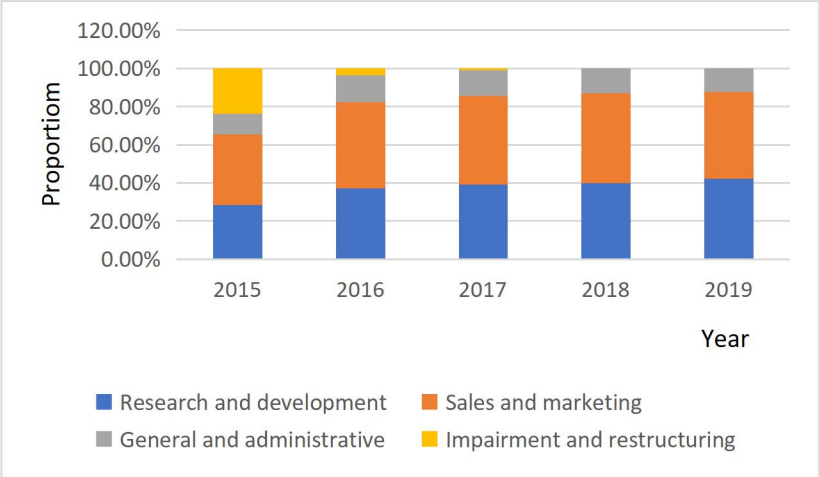
We can see that the proportion of product becomes smaller and smaller in total cost of revenue. However, the service and other becomes a larger and larger part in total cost of revenue. The proportion of service increased from 35.2% in 2015 to 62.8% in 2019. Gradually, it becomes the larger part in total cost of revenue.

Table 4.7 Proportion of Each Item in Operating Expenses. (2015-2019)

	2015	2016	2017	2018	2019
Research and development	28.42%	37.12%	39.17%	39.85%	42.22%
Sales and marketing	37.08%	45.32%	46.45%	47.28%	45.56%
General and administrative	10.88%	14.13%	13.46%	12.87%	12.22%
Impairment and restructuring	23.62%	3.44%	0.92%	0.00%	0.00%
Operating expenses	100.00%	100.00%	100.00%	100.00%	100.00%

Source: Own calculation

Figure 4.6 Proportion of Each Item in Operating Expenses. (2015-2019)



Source: Made by Excel

The proportion of research and development is bigger and bigger from 2015 to 2019, compared to research and development, the sales and marketing accounts for a larger part in operating expenses, what's more, the sales and marketing is always the largest part in operating expenses during 5 years. Then the proportion of administrative part is quite stable from 2015 to 2019, it's about 12%. Last but not least, the proportion of impairment and restructuring becomes smaller and smaller from 23.62% in 2015 to

3.44% in 2016, then it becomes 0.92% in 2017, and it even becomes 0% in 2018 and 2019.

4.1.3 Common-size Analysis of Cash Flow Statement

Horizontal analysis

This part is horizontal analysis of cash flow statement of Microsoft Corporation during fiscal 2015 to 2019. We will use the data according to cash flow statement of Microsoft and the analysis of cash flow statement helps to find the changes and trend of main items of cash flow statement during fiscal 2015 to fiscal 2019.

Table 4.8 Cash Flow of Microsoft. (2015-2019) unit: US dollars million

	2015	2016	2017	2018	2019
Net cash from operations	29,668	33,325	39,507	43,884	52,185
Net cash from financing	-9,668	-8,393	8,408	-33,590	-36,887
Net cash from investing	-23,001	-23,950	-46,781	-6,061	-15,773

Source: Own calculation

From this simple cash flow statement of Microsoft table 4.8, we can find that the cash flow is main from three activities: operating activities, financing activities and investing activities. On the whole, the net cash flow from operating activities is increasing from 29668 to 52185 million dollars during fiscal 2015 to 2019. However, the net cash from investing activities is a decreasing trend from -23001 to -15773 million dollars. Additionally, the net cash from financing activities fluctuates greatly. From 2015 to 2017, it is growing, but from 2017 to 2019, it is decreasing. Now we can calculate the absolute and relative change to analysis better.

Table 4.9 Absolute and Relative Change in Cash Flow Statement (2015-2019) unit: US dollars million

	2015-2016		2016-2017		2017-2018		2018-2019	
	Absolute change	Relative change	Absolute change	Relative change	Absolute change	Relative change	Absolute change	Relative change
Operating activities	3,657	12.33 %	6,182	18.55%	4,377	11.08%	8,301	18.92%
Financing activities	1,275	-13.19 %	16,801	-200.18 %	-41,998	-499.50 %	-3,297	9.82%
Investing activities	-949	4.13%	-22,831	95.33%	40,720	-87.04 %	-9,712	160.24 %

Source: Own calculation

Firstly, the relative change of net cash from operating activities is always positive, that means the net cash is increasing during the fiscal 2015 to 2019. Especially from 2018 to 2019, the relative change is the highest of 18.92% and the absolute change is 8301 million dollars. Secondly, as I said previously, the net cash from financing activities fluctuates a lot. From 2015 to 2017, it was increasing, though the net cash in 2015 and 2016 was negative. From fiscal 2016 to 2017, it grew rapidly by 16801 million dollars from -8393 to 8408 million dollars. However, from 2017 to 2019, it suddenly decreased by -41998 from 8408 to -33590. Last, the absolute change of net cash from investing activities is always negative. From 2015 to 2017, it continued to decrease, especially during 2016 to 2017 it reduced greatly by 22831 million dollars. Then in 2018, it suddenly increased by 40720 million dollars from -46781 to -6061 million dollars, but it was still negative. From 2018 to 2019, it decreased again.

Vertical analysis

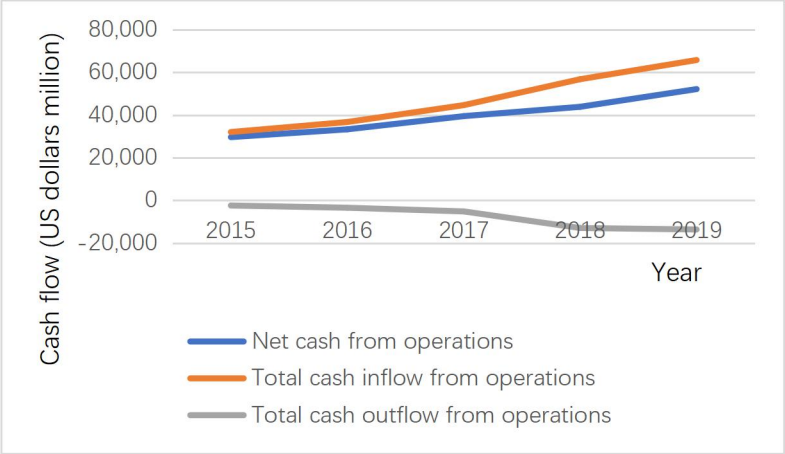
The vertical analysis of cash flow statement in Microsoft will be divided into three part: the net cash from operating activities, net cash from financing activities and net cash from investing activities. I will analysis the structure of the three parts.

Table 4.10 Net Cash from Operating Activities. (2015-2019) unit: US dollars million

	2015	2016	2017	2018	2019
Net income	12,193	20,539	25,489	16,571	39,240
Goodwill and asset impairments	7,498	630	0	0	0
Depreciation, amortization, and other	5,957	6,622	8,778	10,261	11,682
Stock-based compensation expense	2,574	2,668	3,266	3,940	4,652
Net recognized gains on investments and derivatives	-443	-223	-2,073	-2,212	-792
Deferred income taxes	376	2,479	-829	-5,143	-6,463
Accounts receivable	1,456	562	-1,216	-3,862	-2,812
Inventories	-272	600	50	-465	597
Other current assets	62	-1,212	1,028	-952	-1,718
Other long-term assets	346	-1,110	-917	-285	-1,834
Accounts payable	-1,054	88	81	1,148	232
Unearned revenue	0	2,565	3,820	5,922	4,462
Income taxes	0	-298	1,792	18,183	2,929
Other current liabilities	-624	-179	356	798	1,419
Other long-term liabilities	1,599	-406	-118	-20	591
Net cash from operations	29,668	33,325	39,507	43,884	52,185
Total cash inflow	32,061	36,753	44,660	56,823	65,804
Total cash outflow	-2,393	-3,428	-5,153	-12,939	-13,619

Source: Own calculation

Figure 4.7 The Change Trend of Cash Flow from Operations (2015-2019)



Source: Made by Excel

As it is showed in Figure 4.7, we can see the change trend of net cash flow, cash inflow and outflow from operating activities. We use the negative number to show the cash outflow, though the figure shows the cash outflow are decreasing, in fact, the cash inflow and cash outflow both are increasing from 2015 to 2019, and the net cash flow is increasing.

About the structure of the cash flow, in 2015, the net income accounts for the biggest part of the cash inflow, then the goodwill and asset impairments also take up a large part. For the cash outflow, the accounts payable is the biggest cash outflow. In fact, from 2015 to 2019, except 2018, the net income is always the largest part in cash inflow. In 2016, other current assets and other long-term assets contribute to the most part of cash outflow. In 2017, the net recognized gains on investment and derivatives is the biggest cash outflow. In 2018, the income taxes become the biggest part of cash inflow, then is the net income. And the deferred income taxes are the largest cash outflow. In 2019, beside the net income, the depreciation and amortization also take up a big part of cash inflow. The deferred income taxes are the biggest cash outflow.

Table 4.11 Net Cash from Financing Activities. (2015-2019) unit: US dollars million

	2015	2016	2017	2018	2019
Repayments of short-term debt, maturities of 90 days or less, net	4,481	7,195	-4,963	-7,324	0
Proceeds from issuance of debt	10,680	13,884	44,344	7,183	0
Repayments of debt	-1,500	-2,796	-7,922	-10,060	-4,000
Common stock issued	634	668	772	1,002	1,142
Common stock repurchased	-14,443	-15,969	-11,788	-10,721	-19,543
Common stock cash dividends paid	-9,882	-11,006	-11,845	-12,699	-13,811
Other, net	362	-369	-190	-971	-675
Net cash from financing	-9,668	-8,393	8,408	-33,590	-36,887
Total cash inflow from financing	16,157	21,747	45,116	8,185	1,142
Total cash outflow from financing	-25,825	-30,140	-36,708	-41,775	-38,029

Source: Own calculation

As it is showed in Table 4.11, the cash inflow from financing activities is growing from 2015 to 2017, but from 2018 to 2019 it began to decrease. We can see that the net cash flow is negative, which means the cash out flow is bigger than cash inflow from 2015 to 2019.

From 2015 to 2019, the proceeds from issuance of debt is always the biggest part of cash inflow. As for the cash outflow, except 2017 and 2018, the common stock repurchased accounts for the largest part of cash outflow, though the common stock repurchased also takes up a big part in it.

Table 4.12 Net Cash from investing Activities. (2015-2019) unit: US dollars million

	2015	2016	2017	2018	2019
Additions to property and equipment	-5,944	-8,343	-8,129	-11,632	-13,925
Acquisition of companies, net of cash acquired, and purchases of intangible and other assets	-3,723	-1,393	-25,944	-888	-2,388
Purchases of investments	-98,729	-129,758	-176,905	-137,380	-57,697
Maturities of investments	15,013	22,054	28,044	26,360	20,043
Sales of investments	70,848	93,287	136,350	117,577	38,194
Securities lending payable	-466	203	-197	-98	0
Net cash from investing	-23,001	-23,950	-46,781	-6,061	-15,773
Total cash inflow from investing	85,861	115,544	164,394	143,937	58,237
Total cash outflow from investing	-108,862	-139,494	-211,175	-149,998	-74,010

Source: Own calculation

The net cash flow from financing activities is also negative, that means the cash outflow is more than cash inflow from investing activities. From 2015 to 2019, the sales of the investments account for the biggest part of cash in flow, then is the maturities of investments. As for the cash outflow, the purchase of investments takes up the largest part of cash outflow.

4.2 Financial ratio Analysis of Microsoft

In this chapter, the financial ratio analysis is used to analyze a company's liquidity, solvency ability, profitability and operating efficiency. We will use the formulas which are introduced in chapter 2. What's more, the analysis will be divided into 4 parts:

liquidity ratio, solvency ratio, profitability ratio and activity ratio. With the help of financial ratio analysis, we can know the company's condition better, and it's useful for investors and managers to make decisions as well as to consider the future strategies of their company.

4.2.1 Liquidity Ratio

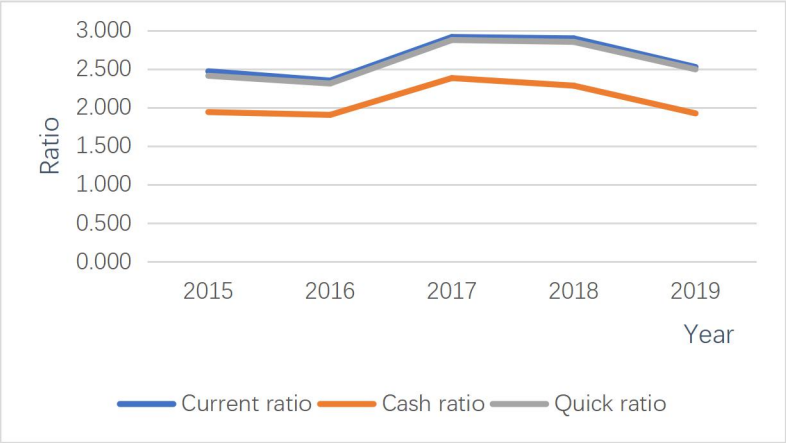
In the Table 4.13, I put the current ratio, cash ratio and quick ratio together, because all of them reflect how quick a company can convert part of the assets into cash to meet the current liabilities, so it's better to put them into a table together.

Table 4.13 Current Ratio, Cash Ratio and Quick Ratio of Microsoft (2015-2019)

	2015	2016	2017	2018	2019
Total cash, cash equivalents and short-term investments	96,526	113,240	132,981	133,768	133,819
Total current assets	122797	139660	162696	169662	175552
Inventories	2902	2251	2181	2662	2063
Total current liabilities	49647	59357	55745	58488	69420
Current ratio	2.473	2.353	2.919	2.901	2.529
Cash ratio	1.944	1.908	2.386	2.287	1.928
Quick ratio	2.415	2.315	2.879	2.855	2.499

Source: Own calculation

Figure 4.8 The Change Trend of Current Ratio, Cash Ratio and Quick Ratio



Source: Made by Excel

Current Ratio.

The cash ratio measures how quick a company can convert its current assets into cash to pay off its current liabilities. I have calculated the current ratio as it is showed in Table 4.13. In order to calculate the current, we need find out the current assets and current liabilities in balance sheet, then use the formula (2.4) to calculate the result, and I drew the broken line in Figure 4.8. We can see that from 2015 to 2019, the current ratio is always higher than 1. In 2016, the current ratio is the lowest which is 2.353, it doesn't mean the Microsoft can't meet it current liabilities, it just means the liquidity is lower than other years, it was because that the current liabilities increased in 2016. Then in 2017, the ratio increased a little which is 2.919, it reflects the liquidity in 2017 is quite high. However, from 2017 to 2019, the current ratio was decreasing, the liquidity is also decreasing. The current ratio between 1.5 to 2.5 is good for company, the current ratio from 2015 to 2019 is higher than 2.5, so it's too high, it's not very good.

Cash Ratio.

In cash ratio, only the highly marketable short-term securities and cash are calculated. We need the formula (2.5) to calculate the result. It's not so good if the cash ratio is too high, though it can convert its short-term securities and cash into money easily, it

holds too much cash, they cannot generate any profit. In general, the cash ratio should be higher than 0.2, but it can't be so high. the Microsoft can meet its current liabilities with the short-term securities and cash easily. But the cash ratio is too high.

Quick Ratio.

The quick ratio only includes the most liquid assets, it excludes the inventories, because inventories are not always liquid. So, when we calculate the quick ratio, we subtracting the inventories. We use the formula (2.6) to calculate the result. The quick ratio between 1 and 1.5 is good for a company, we can see that the quick ratio of Microsoft is always higher than 2, it means the current assets except inventories accounts for a large proportion in total assets, it's not efficient.

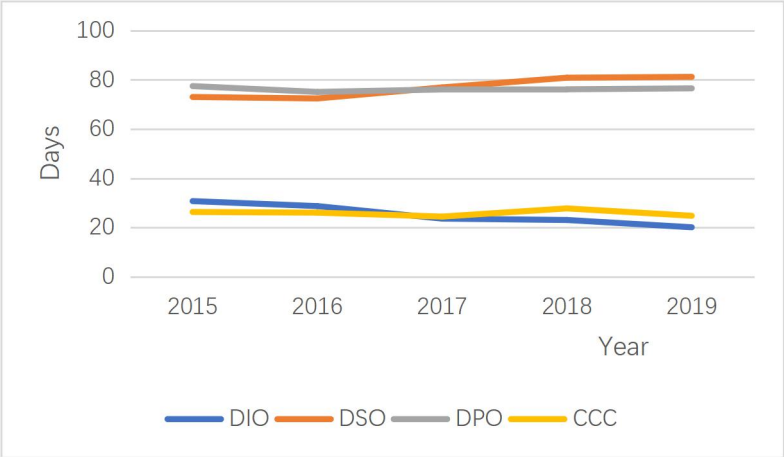
To calculate the CCC, we must firstly know the DIO, DSO and DPO, so I put them together to make the calculation easier.

Table 4.14 The Calculation of CCC (cash conversion cycle)

	2015	2016	2017	2018	2019
Avg. Accounts Receivable	18726.0	18092.5	20354.0	24456.0	28002.5
Avg. Accounts payable	7011.5	6744.5	7144.0	8003.5	8999.5
Avg. Inventories	2781.0	2576.5	2216.0	2421.5	2362.5
COGS	33038.0	32780.0	34261.0	38353.0	42910.0
Total revenue	93580.0	91154.0	96571.0	110360.0	125843.0
DIO	31	29	24	23	20
DSO	73	72	77	81	81
DPO	77	75	76	76	77
CCC	26	26	24	28	25

Source: Own calculation

Figure 4.9 The Change Trend of DIO, DSO, DPO and CCC. (2015-2019)



Source: Made by Excel

DIO (Days of Inventory Outstanding)

DIO means the days sales of inventory. Generally, the shorter the days the better, which shows the company can sale its inventories quickly. We can see from the Table 4.14, from 2015 to 2019, the DIO is becoming shorter and shorter, the days is shorter than a month. It's a good condition for Microsoft, it reflects Microsoft can sale its inventory quicker.

DSO (Days Sales Outstanding)

DSO measures how long it takes to collect the cash generated from the sales. The lower level of DIO the better. As we can see from Table 4.14, the days to collect the cash is becoming longer and longer from 2015 to 2019. But it isn't too long, it just increases by 7 days, which will not influence the company too much.

DPO (Days Payables Outstanding)

DPO measures how long it takes for a company to pay off its obligations. Generally, the longer the days the better. It means the company can hold the cash for longer, which can generate the profit. In Table 4.14, we can see from 2015 to 2019, the days payables outstanding is stable, that is about 76 days. It's not bad for Microsoft.

CCC (Cash Conversion Cycle)

The Cash Conversion Cycle measures how many days it takes for a company to convert its investments in inventory and other resources into cash flows from sales. The shorter the CCC the better. In Table 4.14, the CCC is relatively stable from 2015 to 2019. The longest days is 28 in 2018, the shortest is 24 in 2017. It doesn't change a lot, so it doesn't influence Microsoft too much.

4.2.2 Solvency Ratio

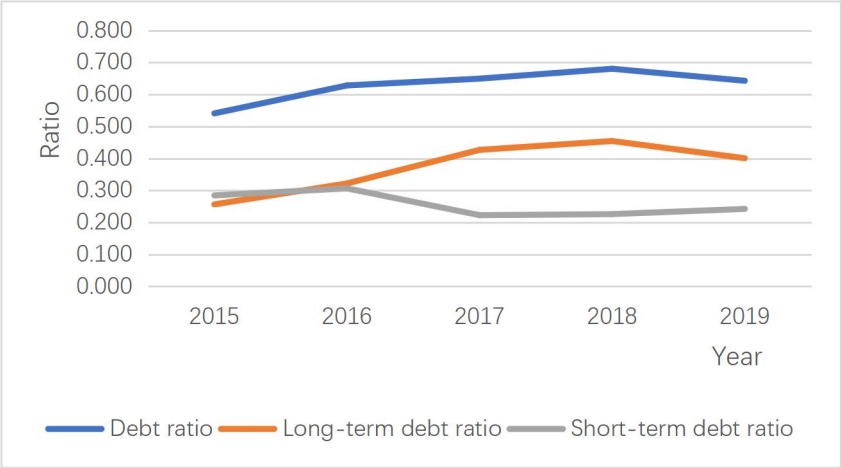
The debt ratio and long-term as well short-term debt ratio are put into a table, because the debt can be divided into long-term debt and short-debt, and it's helpful to analysis the structure of debt.

Table 4.15 Debt Ratio of Microsoft. (2015-2019)

	2015	2016	2017	2018	2019
Total assets	174,472	193,694	250,312	258,848	286,556
Total current liabilities	49,647	59,357	55,745	58,488	69,420
Total non-current liabilities	44,742	62,340	106,856	117,642	114,806
Total Liabilities	94,389	121,697	162,601	176,130	184,226
Debt ratio	0.541	0.628	0.650	0.680	0.643
Long-term debt ratio	0.256	0.322	0.427	0.454	0.401
Short-term debt ratio	0.285	0.306	0.223	0.226	0.242

Source: Own calculation

Figure 4.10 The Change Trend of Debt Ratio, Long-term and Short-term Ratio. (2015-2019)



Source: Made by Excel

Debt Ratio

Debt ratio measures how much assets are financed by debts, in other words, we can regard it as the proportion of debts to assets. To calculate the debt ratio, the formula (2.8) are used, we should firstly find out the total assets and total debts, which are showed in Table 4.15 and the change trend are showed in Figure 4.10. Generally, the debt ratio around 0.55 is good for a company. We can see that the debt ratio of Microsoft from 2016 to 2019 is higher than 0.55 even higher than 0.6, but it is not too high, from the chart, the debt ratio reflects a decreasing tendency, so the Microsoft has good solvency ability. But the lower the ratio the lower the risk.

Long-term Debt Ratio and Short-term Debt Ratio

The long-term debt ratio measures how much assets are financed by long-term debt, and the short-term ratio measures how much assets are financed by short-term debt. As for the long-term ratio, it is increasing, it's not good for Microsoft. Especially from 2017 to 2019, the ratio is higher than 0.4, it can be risks, but the short-term ratio is decreasing, which reduce the risks to maintain the solvency of Microsoft.

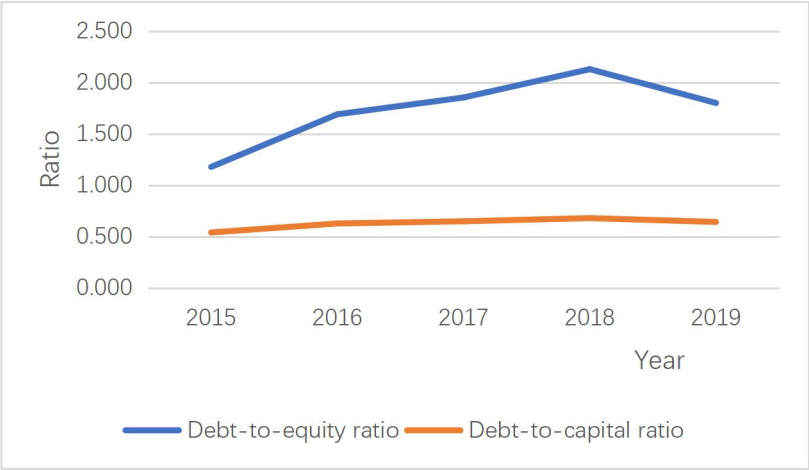
In the Table 4.16, the debt-to-equity ratio and debt-to-capital ratio are calculated together, because equity are part of capital, and they have same components for calculation.

Table 4.16 The Debt-to-equity Ratio and Debt-to-capital Ratio. (2015-2019)

	2015	2016	2017	2018	2019
Total debts	94,389	121,697	162,601	176,130	184,226
Total equity	80,083	71,997	87,711	82,718	102,330
Total debts and equity	174,472	193,694	250,312	258,848	286,556
Debt-to-equity ratio	1.179	1.690	1.854	2.129	1.800
Debt-to-capital ratio	0.541	0.628	0.650	0.680	0.643

Source: Own calculation

Figure 4.11 The Change Trend of Debt-to-equity Ratio and Debt-to-capital Ratio. (2015-2019)



Source: Made by Excel

Debt-to-equity Ratio

The Debt-to-equity Ratio measures how much leverage a company is using. The formula (2.11) is used to calculate the ratio. In general, the Debt-to-equity Ratio should be less than 1, from the Table 4.16, we can see that from 2015 to 2019, the

ratio is higher than 1, in 2018 the ratio is the highest of 2.129. From the Figure 4.11, we can see that from 2015 to 2018, the ratio is increasing, which means the financial condition is not good for Microsoft, the risk of insolvency is increasing. The structure of the capital should be adjusted.

Debt-to-capital Ratio

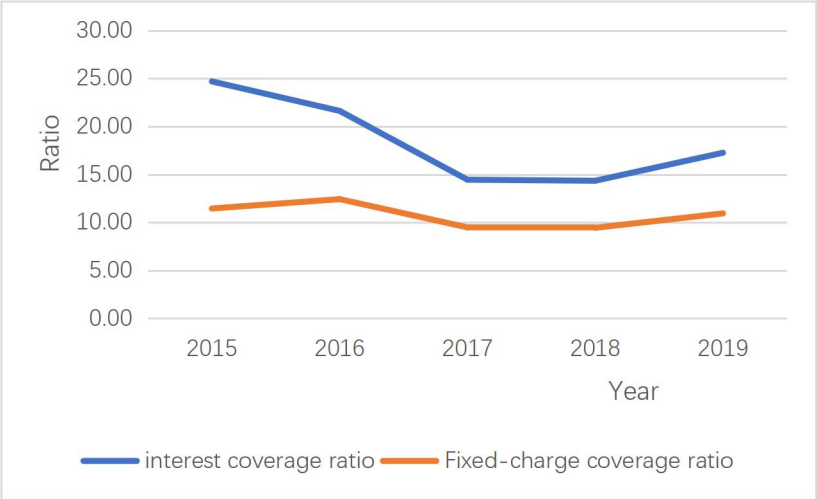
The Debt-to-capital Ratio measures the structure of capital that the proportion of debts to capital. To calculate the ratio, we should find out the total debts and capital, and the formula (2.12) is used. In general, the ratio between 0.45 and 0.65 is good for a company. As it is showed in Table 4.16, from 2015 to 2019 except 2018, the ratio is between 0.45 and 0.65, though in 2018 the ratio id higher than 0.65, but not too much. In the graph, we can figure out the change of the ratio is quite stable. On the whole, the solvency ability in long-term is in good condition, but there is also risk in the structure of capital.

Table 4.17 The Interest Coverage Ratio and Fixed-charge coverage ratio. (2015-2019)

	2015	2016	2017	2018	2019
Net income	12,193	20,539	25,489	16,571	39,240
Provision for income taxes	6,314	5,100	4,412	19,903	4,448
Interest expense	781	1,243	2,222	2,733	2,686
EBIT	19,288	26,882	32,123	39,207	46,374
FCBT	989	1,000	1,300	1,585	1,707
Interest coverage ratio	24.70	21.63	14.46	14.35	17.27
Fixed-charge coverage ratio	11.46	12.43	9.49	9.45	10.94

Source: Own calculation

Figure 4.12 The Change Trend of Interest Coverage Ratio and Fixed-charge coverage ratio. (2015-2019)



Source: Made by Excel

Interest Coverage Ratio

Interest coverage ratio measures a company's ability to pay off the interest with the earnings before interest and taxes. In general, if the interest coverage ratio equals to 1, it means the company can pay off the interest, on the contrary, if the ratio is lower than 1, it means the company is in poor condition. To calculate the ratio, we need firstly find out the EBIT, which equals to the net income add interest and taxes, then we use the formula (2.13). As we can see from the Table 4.17, the interest coverage ratio is obviously higher than 1 even than 10. In 2015, the ratio reached the highest level which is 24.7. In 2018, its lowest level was 14.35. Then we can see the Figure 4.12, from 2015 to 2018, the interest coverage ratio reflects a decreasing trend. Especially during the 2016 to 2017, the ratio decreased quickly. Then it started to grow in 2019. In short, the Microsoft has enough ability to pay off its interest expenses.

Fixed-charge Coverage Ratio

The fixed-charge coverage ratio measures a company's ability to cover its fixed expenses, for Microsoft, the fixed charge of Microsoft is operating lease cost, which is the FCBT, then the formula (2.14) is used to calculate the ratio. From the Table 4.17,

we can find that the ratio is relatively stable during the 2015 to 2019, which is also showed in the Figure 4.12. In 2016, the ratio is the highest of 12.43, it shows the Microsoft can cover every 1 dollar of debt with 12.43 dollars of earning. So we can generally say the Microsoft has good solvency.

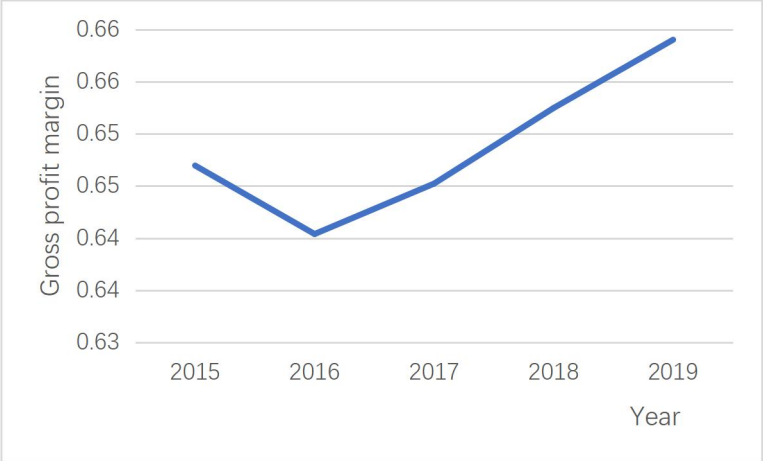
4.2.3 Profitability Ratio

Table 4.18 The Gross Profit Margin of Microsoft. (2015-2019)

	2015	2016	2017	2018	2019
Gross margin	60,542	58,374	62,310	72,007	82,933
Total revenue	93,580	91,154	96,571	110,360	125,843
Gross profit margin	0.65	0.64	0.65	0.65	0.66

Source: Own calculation

Figure 4.13 The Change trend of Gross Profit Margin. (2015-2019)



Source: Made by Excel

Gross Profit Margin

To calculate the gross profit margin, the formula (2.15) is used, firstly we need to find out the gross profit, it is the difference between total revenue and the cost of revenue, or you can directly find it in the income statement. From the Table 4.18, we can see

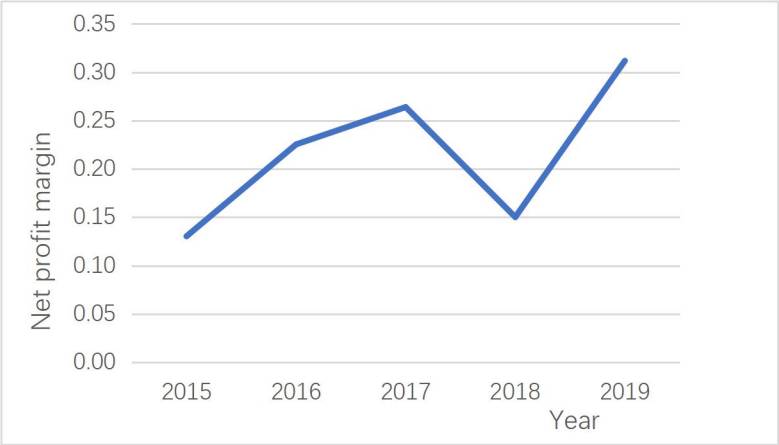
that the gross profit margin is quite stable from 2015 to 2019, it is about 0.65. The higher the gross profit margin, the more profitable of the company. Microsoft is profitable and it can provide better goods and service.

Table 4.19 The Net Profit Margin a of Microsoft. (2015-2019)

	2015	2016	2017	2018	2019
Net income	12,193	20,539	25,489	16,571	39,240
Total revenue	93,580	91,154	96,571	110,360m	125,843
Net profit margin	0.13	0.23	0.26	0.15	0.31

Source: Own calculation

Figure 4.14 The Change trend of Net Profit Margin. (2015-2019)



Source: Made by Excel

Net Profit Margin

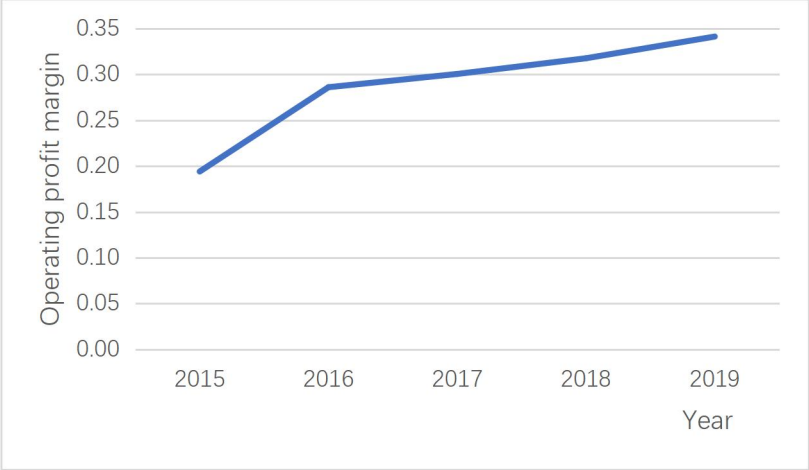
Net profit is the profit after deducting the interest and taxes, the closer between the gross profit margin and the net profit margin, the less cost are spent from the company. We can see from the Table 4.19, from 2015 to 2017, the net profit margin is increasing, and in 2017, the ratio reaches 0.26, then in 2018, it decreased to 0.15, but in 2019 it reaches the highest level of 0.31. It shows that the taxes and interest is high, which results in the low net profit margin.

Table 4.20 The Operating Profit Margin of Microsoft. (2015-2019)

	2015	2016	2017	2018	2019
Operating income	18,161	26,078	29,025	35,058	42,959
Total revenue	93,580	91,154	96,571	110,360	125,843
Operating profit margin	0.19	0.29	0.30	0.32	0.34

Source: Own calculation

Figure 4.15 The Change trend of Operating Profit Margin. (2015-2019)



Source: Made by Excel

Operating Profit Margin

The operating profit is the earnings after the cost of revenues but before the taxes and interest. To calculate the operating profit margin, the formula (2.17) is used. From the Table 4.20, we can see that during 2015 to 2019, the operating profit margin is increasing constantly, the operating income and total revenue are also growing, which shows the Microsoft has been generating a lot of profits, and it has the great potential to generate more benefits in the future.

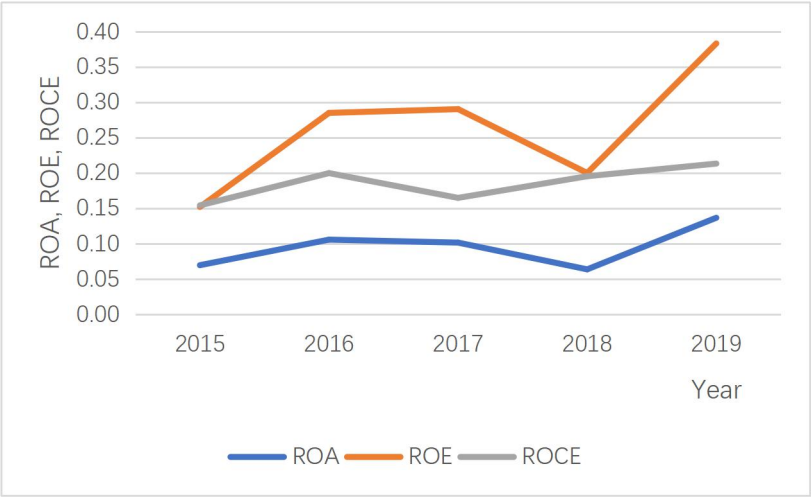
I merge the ROA, ROE and ROCE together into one table, all of them measure the profitability of Microsoft, they measure how much profit the company can generate from its assets, equity and capital employed, they also have the same components for calculation.

Table 4.21 ROA, ROE and ROCE of Microsoft. (2015-2019)

	2015	2016	2017	2018	2019
EAT	12,193	20,539	25,489	16,571	39,240
Total assets	174,472	193,694	250,312	258,848	286,556
EBIT	19,288	26,882	32,123	39,207	46,374
Equity	80,083	71,997	87,711	82,718	102,330
Capital employed	124,825	134,337	194,567	200,360	217,136
ROA	0.07	0.11	0.10	0.06	0.14
ROE	0.15	0.29	0.29	0.20	0.38
ROCE	0.15	0.20	0.17	0.20	0.21

Source: Own calculation

Figure 4.16 The Change of ROA, ROE and ROCE. (2015-2019)



Source: Made by Excel

ROA

Return on assets of Microsoft is calculated according to formula (2.18). This ratio reflects the profitability of the company on generating revenue by its total assets. In other words, this ratio reflects the utility of the company to use its assets to generating profit. The higher the ratio, the higher the company's ability on generating revenue by its assets. According to the Table 4.21 and the Figure 4.16, from 2015 to 2019, the ROA fluctuates a lot, in 2018, the ROA is the lowest with 0.06, and in 2019, the ROA reaches the highest level of 0.14. On the whole, the return of assets is proper to the Microsoft, it can generate benefits from the assets.

ROE

Return on equity of Microsoft is calculated according to formula 2.20. This ratio reflects the profitability of company on generating profit by its equity. The higher the ratio, the more benefits the company can earn from its equity. From 2015 to 2016, the ROE increased, because the net income increased in this period which was driven by the decrease in the tax rate. During 2017 to 2018, the ROE decreased, the decrease of the net income caused it. The net charge related to the enactment of the TCJA, which resulted in a decrease to net income. From 2018 to 2019, the ROE increased, it also caused by the increase of net income. In 2019, net income included net income tax benefit related to intangible property transfers and net charge related to the enactment of the TCJA, which together resulted in an increase to net income. It shows the Microsoft gets more profit on the equity. But it also can be risky.

ROCE

ROCE measures how well a company can generate profit from its capital, the formula (2.21) is used to calculate the ratio. From the Table 4.21 and the Figure 4.16, we can see that the return on capital employed is between the ROA and ROE, and it looks relatively stable, the risk is relatively lower than the return on equity.

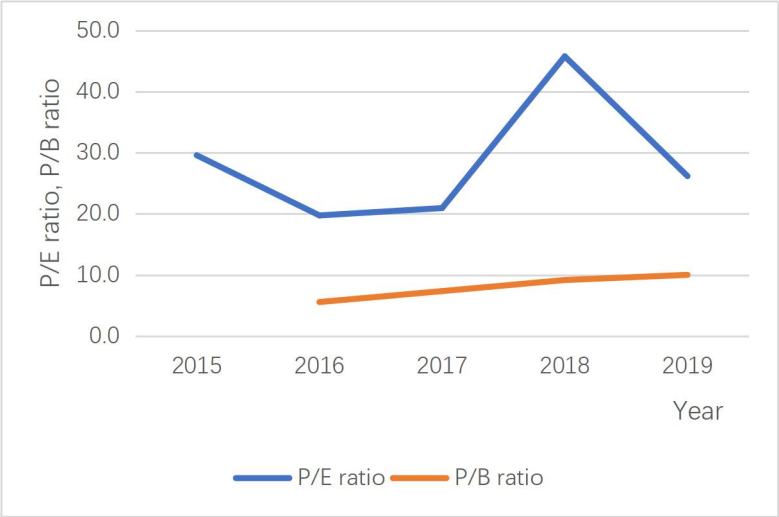
In the Table 4.22, the EPS, P/E ratio and P/B ratio are calculated together. The EPS are used to calculate the P/E ratio, and when calculate the P/E ratio and P/B ratio, they both need the market ratio, I merged it to analysis the difference between them.

Table 4.22 The EPS, P/E Ratio and P/B Ratio of Microsoft. (2015-2019)

	2015	2016	2017	2018	2019
Net income available for common shareholders	12193	20539	25489	16571	39240
Weighted average common stocks outstanding	8,177	7,925	7,746	7,700	7,673
EPS	1.49	2.59	3.29	2.15	5.11
Market price per share	44.15	51.17	68.93	98.61	133.96
Book value per share	-	9.22	9.39	10.77	13.39
P/E ratio	29.61	19.74	20.95	45.82	26.19
P/B ratio	-	5.55	7.34	9.16	10.00

Source: Own calculation

Figure 4.17 The Change Trend of P/E ratio of P/B ratio. (2015-2019)



Source: Made by Excel

Earnings per share (EPS)

The formula (2.22) is used to calculate the ratio, the higher the ratio, the more profitable. According to the Table 4.22, from 2015 to 2017, the EPS was increasing, though it decreased in 2018 to 2.15, it increased greatly in 2019. On the whole, Microsoft has the potential to earn more, it's profitable.

P/E Ratio

The formula (2.23) is used to calculate the P/E ratio, the market price can be found on the financial website. According to the Table 4.22, the P/E ratio fluctuates a lot during 2015 to 2019. In 2016, the ratio is lowest of 19.74, and in 2018, the ratio reached the highest level of 45.82, it means the stock of Microsoft is over-valued, investors expected a higher growth rate. It also shows Microsoft always makes profit, because a company doesn't have P/E ratio is it make a loss. So, Microsoft is profitable.

P/B Ratio

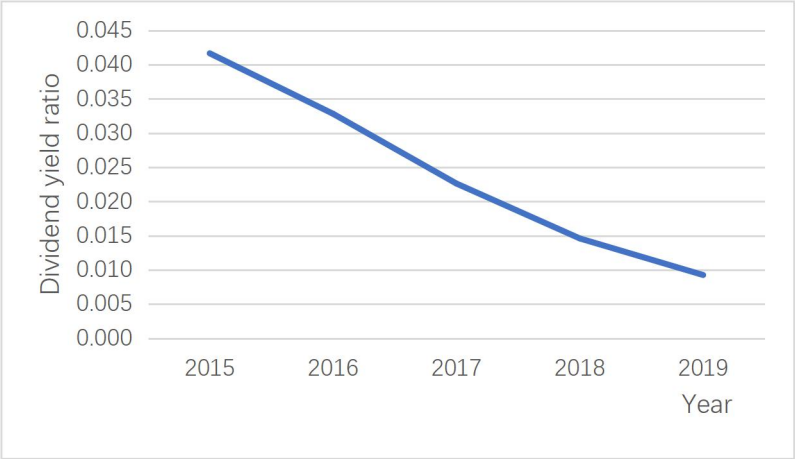
The formula (2.24) is used to calculate the ratio, usually, the lower the ratio the better, it means the stock is under-valued, it's cheap and investor can purchase, and the stock has great potential to grow. Because of the limits of website, the book value in 2015 can't be found, the P/B ratio in 2015 can't be calculated. The reasonable level of the ratio is between 3 and 10. According to the Table 4.22, we can see that from 2016 to 2019 the ratio was increasing, but it always lower than 10 and higher than 3, it's reasonable. So, the investors of Microsoft can purchase the stock and they can earn profit in the future.

Table 4.23 The Dividend Yield Ratio of Microsoft. (2015-2019)

	2015	2016	2017	2018	2019
Cash dividends declared per common share	1.84	1.68	1.56	1.44	1.24
Market price per share	44.15	51.17	68.93	98.61	133.96
Dividend yield ratio	0.042	0.033	0.023	0.015	0.009

Source: Own calculation

Figure 4.18 The Change Trend of Dividend Yield Ratio. (2015-2019)



Source: Made by Excel

Dividend yield ratio

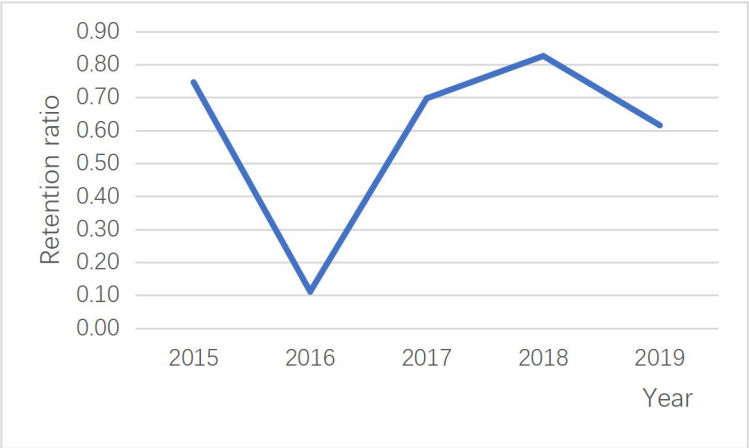
Dividend yield ratio measures how many cash dividends are distributed to the shareholders, the formula (2.25) is used to calculate the ratio. Generally, the higher the ratio, the more profit shareholders can earn. Normally, if the ratio is higher than 0.05, it can be regarded as a high dividend yield company, investor can earn a high profit. From the Table 4.23, we can see that the dividend yield ratio of Microsoft was decreasing during 2015 to 2019. In 2015, the ratio is high with 0.042, but in 2019, the ratio decreased to 0.009, it was quite low. Investors could earn less in Microsoft.

Table 4.24 The Retention Ratio of Microsoft. (2015-2019

	2015	2016	2017	2018	2019
Retained earnings	9,096	2,282	17,769	13,682	24,150
Net income	12,193	20,539	25,489	16,571	39,240
Retention ratio	0.75	0.11	0.70	0.83	0.62

Source: Own calculation

Figure 4.19 The Change Trend of Retention Ratio. (2015-2019)



Source: Made by Excel

Retention Ratio

In order to calculate the retention ratio, the formula (2.26) is used. The retained earnings are retained to support the future growth of the company. Usually, the higher the ratio, the smaller the amount of the company paid the dividends out. We can see that except 2016, Microsoft didn't pay too much dividends to the shareholders, which leads to the high level of ratio. In other words, Microsoft used plenty of money to grow its business. In 2016, the retained earnings were very low, and the retention was also low. It means in 2016, Microsoft paid a lot of money as dividends to the shareholders, and the amount of money remained to the business is small.

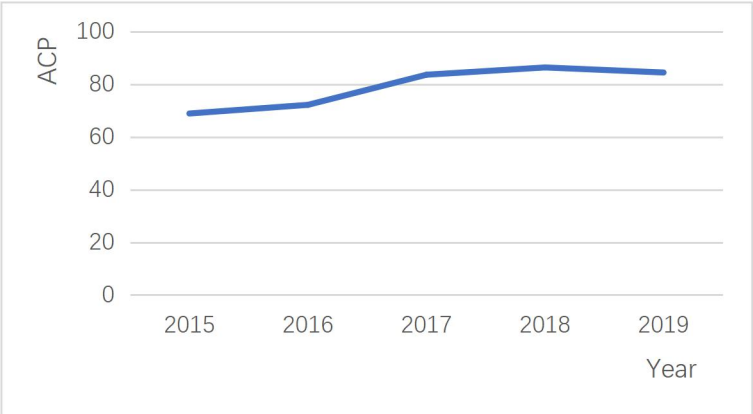
4.2.4 Activity Ratio

Table 4.25 The ACP and ART of Microsoft. (2015-2019)

	2015	2016	2017	2018	2019
Accounts receivable	17,908	18,277	22,431	26,481	29,524
Total revenue	93,580	91,154	96,571	110,360	125,843
ACP	69	72	84	86	84
ART	5.23	4.99	4.31	4.17	4.26

Source: Own calculation

Figure 4.20 The Change Trend of ACP. (2015-2019)

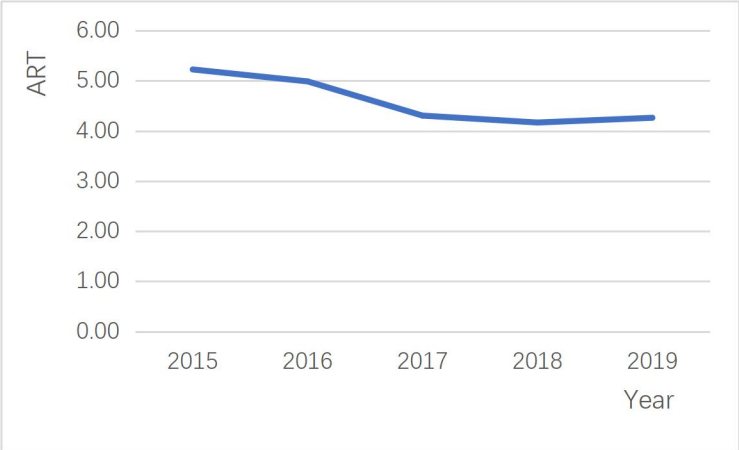


Source: Made by Excel

Average Collection Period (ACP)

The Average collection period measures how many days a company can receive the money from the customers. This ratio is used in the situation that the company sales its products on credit, so the item accounts receivable is used. And to calculate the ratio, formula (2.27) is used. It was similar to the DSO, the shorter the days the better. From the Table 4.25, the period is becoming longer and longer during 2015 to 2018, but it didn't increase a lot, and in 2019 the period was beginning to decrease. So the average collection period is stable for Microsoft.

Figure 4.21 The Change Trend of ART. (2015-2019)



Source: Made by Excel

Average Receivable Turnover (APT)

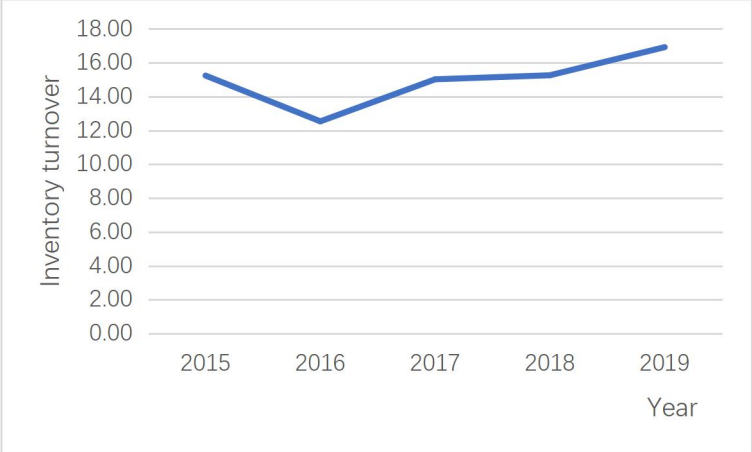
The Average receivable turnover measures an enterprise accounts receivable turnover speed and management efficiency. The formula (2.28) is used. Generally, the higher the ratio the better, it means the company can collect the accounts receivable quicker. From 2015 to 2018, the ratio was decreasing, but it didn't decrease a lot, in 2019, the ratio began to increase and the ratio is relatively high. In short, Microsoft has good ability to collect its accounts receivables quickly.

Table 4.26 The Inventory Turnover of Microsoft. (2015-2019)

	2015	2016	2017	2018	2019
Operating expenses	42381	32296	33285	36949	39974
Average inventory	2781	2576.5	2216	2421.5	2362.5
Inventory turnover	15.24	12.53	15.02	15.26	16.92

Source: Own calculation

Figure 4.22 The Change Trend of Inventory Turnover. (2015-2019)



Source: Made by Excel

Inventory Turnover

The inventory turnover measures the turnover speed of inventory. The formula (2.29) is used. The higher the inventory turnover ratio, the faster the company can sale its inventory, the liquidity is also higher. From Table 4.26, we can see that the ratio of Microsoft is high, which means Microsoft can sale its inventory very fast, the level of

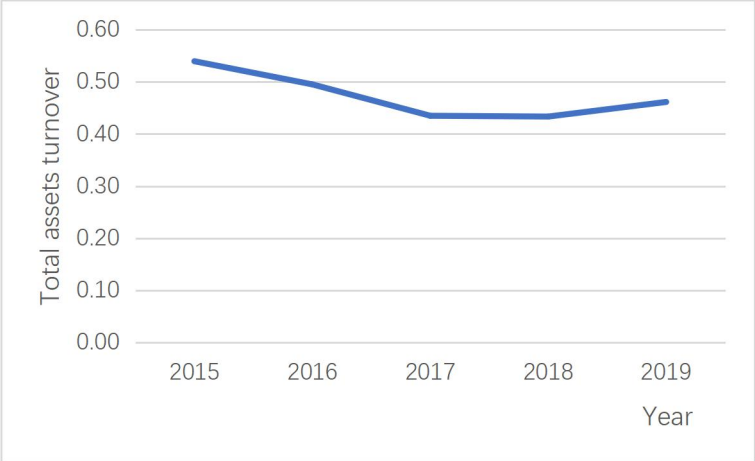
inventory occupation is low, what's more, the liquidity of Microsoft is high, in other words, Microsoft can convert the inventory into money quickly.

Table 4.27 The Total Asset Turnover of Microsoft. (2015-2019)

	2015	2016	2017	2018	2019
Total revenue	93,580	91,154	96,571	110,360	125,843
Average total assets	173428	184083	222003	254580	272702
Total assets turnover	0.54	0.50	0.43	0.43	0.46

Source: Own calculation

Figure 4.23 The Change Trend of Total Assets Turnover. (2015-2019)



Source: Made by Excel

Total Asset Turnover

Total asset turnover ratio measures the operation efficiency of enterprise assets, it reflects the transfer speed of all assets from input to output over the enterprise. The formula (2.30) is used to calculate the ratio, the higher the ratio, the more efficient of the company to sales its products. The assets turnover of Microsoft is relatively low, and from 2015 to 2018, it was decreasing, though from 2018 to 2019 the ratio

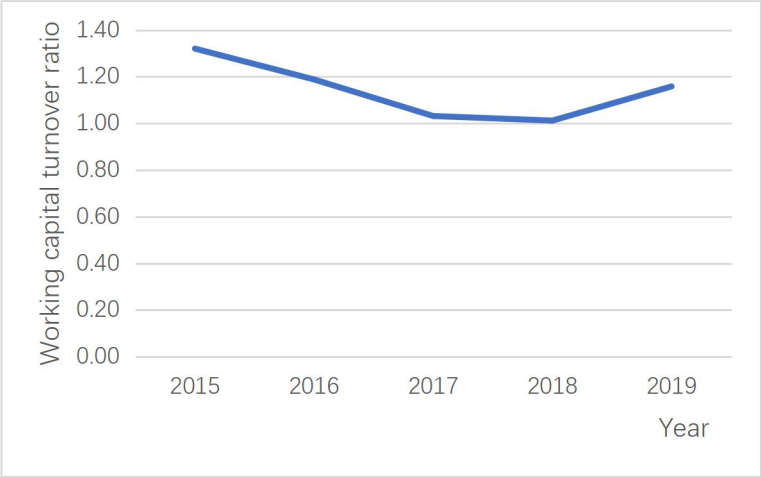
increased, it didn't increase too much. In brief, the operation efficiency of Microsoft is not very well, the assets turnover is slow.

Table 4.28 The Working Capital Turnover Ratio of Microsoft. (2015-2019)

	2015	2016	2017	2018	2019
Total revenue	93,580	91,154	96,571	110,360	125,843
Average working capital	70885.5	76726.5	93627	109062.5	108653
Working capital turnover ratio	1.32	1.19	1.03	1.01	1.16

Source: Own calculation

Figure 4.24 The Change Trend of Working Capital Turnover Ratio. (2015-2019)



Source: Made by Excel

Working Capital Turnover Ratio

In older to calculate the working capital turnover ratio, we should find out the working capital, which is the difference between current assets and current liabilities. and the formula (2.31) is used. Generally, the higher the ratio, the more efficient, and the company can earn more by using one unit of working capital to support the sales. As it is showed in Table 4.28, the working capital turnover ratio of Microsoft is about one, it's a normal level, it's not efficient enough, although Microsoft could get

revenue from the supporting of working capital. So, the working capital turnover ratio is low for Microsoft.

4.3 Dupont Analysis

In this chapter, we use the Dupont analysis to access the Microsoft. The formula (2.32) to make decomposition.

In the Table 4.29, it shows the value of each item in decomposition. We have talked about the components of ROE, which are the net profit margin, asset turnover and financial leverage.

Table 4.29 The Value of Each Item in Decomposition. (2015-2019)

	2015	2016	2017	2018	2019
Net profit margin	0.130	0.225	0.264	0.150	0.312
Assets turnover	0.536	0.471	0.386	0.426	0.439
Financial leverage	2.179	2.690	2.854	3.129	2.800
ROE	0.152	0.285	0.291	0.200	0.383

Source: Own calculation

Table 4.30 The Absolute Change of Each Item in Decomposition. (2015-2019)

	2015-2016	2016-2017	2017-2018	2018-2019
Net profit margin	0.095	0.039	-0.114	0.162
Assets turnover	-0.066	-0.085	0.041	0.013
Financial leverage	0.512	0.164	0.275	-0.329
ROE	0.133	0.005	-0.090	0.183

Source: Own calculation

To evaluate the effect of each factor relative to the ROE, the method of gradual changes is used. In the Table 4.30, I calculated the absolute change of the components in the decomposition, which is needed in formula (2.35), it is a part of the method. Then in the following Table 4.31, we can see the process of the method.

Table 4.31 The Method of Gradual Changes. (2015-2016)

	2015	2016	2015/2016 (Δ a)	Δ Xai	Order
Net profit margin(a1)	0.130	0.225	0.095	0.111	1
Assets turnover(a2)	0.536	0.471	-0.066	-0.032	2
Financial leverage(a3)	2.179	2.690	0.512	0.054	3
Sum				0.133	

Source: Own calculation

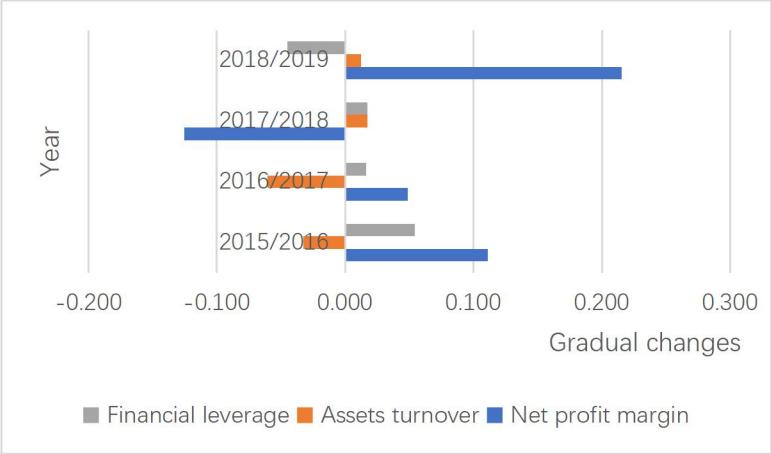
From the Table 4.31, it is the process of method of gradual changes from 2015 to 2016, I take this table as an example, it's just the gradual changes during 2015 to 2016. The Δ Xai are the results, they are the effect of these three components relative to ROE, and the sum of these three numbers is the absolute change of ROE which is showed in the Table 4.30. then we can get which component affect the ROE most from 2015 to 2016. I will explain the result later, we need to calculate the results in other period in a same way. The Table 4.32 is the complete results.

Table 4.32 The Gradual Changes of Each Item. (2015-2019)

Δ Xai	2015/2016	2016/2017	2017/2018	2018/2019
Net profit margin	0.111	0.049	-0.125	0.216
Assets turnover	-0.032	-0.060	0.017	0.012
Financial leverage	0.054	0.017	0.018	-0.045
Sum	0.133	0.005	-0.090	0.183

Source: Own calculation

Figure 4.25 The Gradual Changes of Each Item. (2015-2019)



Source: Made by Excel

The complete results are showed in the Table 4.32. Firstly, from 2015 to 2016 the absolute change of ROE is 0.133, and we can see in this period the net profit margin influenced the ROE most, it increased by 0.111. However, the assets turnover decreased by -0.032 and the financial leverage increased only by 0.054. Obviously, the net profit margin affected the change of ROE most. From 2016 to 2017, the absolute change of ROE was only 0.005, though the net profit margin increased by 0.049, the assets turnover decreased by 0.060, it influenced the ROE most. Then from 2017 to 2018, the ROE decreased by 0.09, obviously the great decreasing of net profit margin had contributed to the reducing of ROE. It decreased by 0.125 during this period. The assets turnover and the financial leverage only increased by 0.017. Last but not least, from 2018 to 2019, the ROE increased greatly by 0.183, and the net profit margin still influenced the ROE most, it increased by 0.216 during this period.

Ultimately, we can see that the net profit margin influences the ROE most in Microsoft. In the meantime, the net profit margin is affected by the net income and total revenue, so Microsoft should manage these two items more carefully.

4.4 Summary

We can draw a conclusion on the chapter 4 based on the financial analysis of Microsoft.

As for the liquidity ratio of Microsoft, the current ratio, cash ratio and quick ratio have same change trend, they all decreased in 2016 and increased in 2017, the reason is the cash and current assets increased rapidly in 2017. And the current ratio of Microsoft is too high from 2017 to 2019, it's not very good for Microsoft. The cash ratio and quick ratio of Microsoft are also too high, which means though Microsoft can meet its current liabilities easily, it holds too much current assets, they can't generate profit for Microsoft, in other words, it's not efficient. And the cash conversion cycle is stable, it's good for Microsoft.

About the solvency ratio of Microsoft. The debt ratio is stable, which shows the proportion of debt in assets is reasonable for Microsoft, though the long-term debt ratio is increasing, but the short-term ratio is decreasing, which reduce the risks to maintain the solvency of Microsoft. So the Microsoft has good solvency ability. From the debt-to-equity ratio and debt-to-capital ratio, we can see that there is risk in the structure of capital, the debt account for a large part in capital. From the interest coverage ratio and fixed-charge coverage ratio, we can see that, the Microsoft can cover its interest expenses with its EBIT and fixed expenses. On the whole, Microsoft has good solvency, but there are still some risks.

Then, about the profitability ratio. From the gross profit margin and operating profit margin, they show Microsoft is profitable and can generate more profit in the future. Because of the high taxes and interest expenses, the net profit margin is low. From the ROA, ROE and ROCE, we can see Microsoft can get profit from assets and equity. The P/E ratio and P/B ratio show Microsoft has good profitability. The dividend yield ratio shows investor can earn profit from Microsoft but it's also risky. The retention ratio shows Microsoft has enough money to support its future growth. On the whole,

Microsoft is profitable, but there are also challenge, so investors must make decisions carefully.

Last, as for the activity ratio. from the ACP and ART of Microsoft, we can see it can collect its accounts receivable quickly. The inventory turnover shows Microsoft can convert its inventory into money quickly. But the assets turnover is slow, which means the operation efficiency of Microsoft is not very well. The working capital turnover ratio is low, it’s not efficient enough.

In summary, the financial performance of Microsoft is good from 2015 to 2019, but it also faces challenges, it should control its cost to increase the profit and improve the efficiency.

5. Conclusion

We have analyzed the financial performance of Microsoft from 2015 to 2019 with the help of some applicable financial methods, from the assessment, investors can learn more about Microsoft Corporation, and decide whether to make investment in this company or not. Manager can find out the problems and take measures to promote its future development.

The aim of this thesis is to assess the financial situation of Microsoft during 2015 to 2019. This thesis is divided into 5 parts: introduction, description of the financial analysis methods, profile of selected company, evaluation of the financial situation of the selected company and conclusion.

Chapter 2 is theoretical part. I introduced the financial statements and the financial analysis methods. The financial statement included: balance sheet, income statement and cash flow statement, I described their basic definition and simple structure. The financial statements are important, because I found the data from them for calculation. The financial methods were divided into three parts, which included common-size analysis, ratio analysis and Dupont analysis. These methods were used in chapter 4, it's fundamental to application part.

In chapter 3, the profile of Microsoft was introduced. I also used the SWOT methods to show the strengths, weaknesses, opportunities and threats of Microsoft. Microsoft experienced a long time for development. As for the strengths, Microsoft is well-known in the world, it has a brand effect in the worldwide, most importantly, Microsoft has good leaders and talented creators. The weaknesses of Microsoft are many products often have security problems. The opportunities of Microsoft are it has many customers and their government supported its development. Last, the threats of Microsoft are it has lots of competitors. We could see that even though Microsoft is a huge company in the world, it also faces lot of challenges and threats. Microsoft need to provide better goods and services to attract customers.

Chapter 4 is application part, I used financial methods which were introduced in chapter 2 to analysis the performance of Microsoft, I also used the tables and figures to show the results. Through the analysis, we could see the financial performance of Microsoft is good from 2015 to 2019, the liquidity, solvency, profitability and operation were reasonable, but it also faced challenges. About the liquidity, though Microsoft could meet its current liabilities easily, it held too much cash, it was not efficient. Then, Microsoft had good solvency ability, but the debts had large proportion in capital. As for the profitability, Microsoft got lots of profit, it also has good potential to earn more money in the future, but the investors should consider it carefully, there are also risks. Last, the activity of Microsoft was not efficient enough, Microsoft should control its cost to increase the profit and improve the efficiency.

In recent year, many technology companies have appeared, they are competitors of Microsoft, they are great challenges. Microsoft must provide better goods and services to be more competitive. The key point is innovation, Microsoft must update its products quickly, providing more convenient services. In the process of innovation, reduce the cost as much as possible, but also focus on the quality of products, improve the security of products.

Bibliography

[1] HIGGINS and Robert, *Analysis for financial management,* New York: McGraw-Hill/Irwin, 2012. ISBN 978-0-07-803468-8.

[2] Robinson, T., H. GREUNING, E. Henry and M. BROIHAHN, *International financial statement analysis*, New York: John Wiley & Sons Inc, 2008. 864 p. ISBN 978-0-470-09225-5.

[3] PETERSON DRAKE, Pamela and Frank and J.FABOZZI, *Analysis of financial statements,* Hoboken: Wiley, 2012. ISBN 978-1-118-29998-2.

[4] ITTELSON and T.R, *Financial Statements: Revised and Expanded Edition,* The Career Press, 2009.

[5] FRIDSON, Martin S. and Fernando ALVAREZ, *Financial Statement Analysis: A Practitioner's Guide*, New Jersey: J. Wiley, 2011. 378 p. ISBN 978-0470635605.

Electronic Bibliography

[6] The history of Microsoft [online]. Available: https://news.microsoft.com/facts-about-microsoft/.

[7] The annual report of Microsoft [online]. Available: https://www.microsoft.com/en-us/Investor/annual-reports.aspx.

[8] The overview and strategy of Microsoft [online].Available: https://www.microsoft.com/en-us/investor.

[9] Basic structure of balance sheet [online].Available: www.theel1tetrader.com/2014/03/quick-cash-flow-analysis.html

[10] Basic structure of income statement [online].Available: https://www.accountancyknowledge.com/multi-step-income-statement/

[11] Basic structure of cash flow statement [online].Available: www.theel1tetrader.com/2014/03/quick-cash-flow-analysis.html

[12] The framework of Dupont analysis [online].Available:https://manoxblog.com/2019/02what-is-dupont-analysis/

List of Abbreviations

CCC	Cash conversion cycle
DIO	Days of inventory outstanding
DSO	Days sales outstanding
DPO	Days payables outstanding
FCCR	Fixed-charge coverage ratio
FCBT	Fixed-charge before taxes
EBIT	Earnings before interest and taxes
GPM	Gross profit margin
ROA	Return on asset
ROE	Return on equity
ROCE	Return on capital employed
EPS	Earnings per share
ACP	Average collection period
ART	Accounts receivable turnover
TCA	Total current assets
TNC	Total non-current assets
TA	Total assets
TCL	Total current liabilities
TNL	Total non-current liabilities
TL	Total liabilities
TE	Total equity
TLE	Total liabilities and equity

Declaration of Utilization of Results from the Bachelor Thesis

Declaration of Utilisation of Results from the Diploma (Bachelor) Thesis

Herewith I declare that

I am informed that Act No. 121/2000 Coll. – the Copyright Act, in particular, Section 35 –Utilisation of the Work as a Part of Civil and Religious Ceremonies, as a Part of School Performances and the Utilisation of a School Work – and Section 60 – School Work, fully applies to my diploma (bachelor) thesis;

I take account of the VSB – Technical University of Ostrava (hereinafter as VSB-TUO) having the right to utilize the diploma (bachelor) thesis (under Section 35(3)) unprofitably and for own use ;

I agree that the diploma (bachelor) thesis shall be archived in the electronic form in VSB-TUO's Central Library and one copy shall be kept by the supervisor of the diploma (bachelor) thesis. I agree that the bibliographic information about the diploma (bachelor) thesis shall be published in VSB-TUO's information system;

It was agreed that, in case of VSB-TUO's interest, I shall enter into a license agreement with VSB-TUO, granting the authorization to utilize the work in the scope of Section 12(4) of the Copyright Act;

It was agreed that I may utilize my work, the diploma (bachelor) thesis or provide a license to utilize it only with the consent of VSB-TUO, which is entitled, in such a case, to claim an adequate contribution from me to cover the cost expended by VSB-TUO for producing the work (up to its real amount).

Ostrava dated 15.05.2020

胡若男 Ruonan Hu

Student's name and surname

List of Annexes

Annex 1: Balance sheet of Microsoft Corporation. (in US dollar million)

	2015	2016	2017	2018	2019
Assets					
Total cash, cash equivalents and short-term investments	96,526	113,240	132,981	133,768	133,819
Cash and cash equivalents	5,595	6,510	7,663	11,946	11,356
Short-term investments	90,931	106,730	125,318	121,822	122,463
Accounts receivable	17,908	18,277	22,431	26,481	29,524
Inventories	2,902	2,251	2,181	2,662	2,063
Finished goods	1,600	1,481	1,239	1,953	1,611
Work in progress	202	158	145	54	53
Raw materials	1,100	612	797	655	399
Others current asset	5,461	5,892	5,103	6,751	10,146
Total current assets	**122,797**	**139,660**	**162,696**	**169,662**	**175,552**
Property and equipment, net of accumulated depreciation	14,731	18,356	23,734	29,460	36,477
Operating lease right-of-use assets	0	0	6,555	6,686	7,379
Equity and other investments	12,053	10,431	6,023	1,862	2,649
Goodwill	16,939	17,872	35,122	35,683	42,026
Intangible assets, net	4,835	3,733	10,106	8,053	7,750
Other long-term assets	3,117	3,642	6,076	7,442	14,723
Total non-current assets	**51,675**	**54,034**	**87,616**	**89,186**	**111,004**
Total assets	**174,472**	**193,694**	**250,312**	**258,848**	**286,556**

Liabilities and stockholders' equity					
Accounts payable	6,591	6,898	7,390	8,617	9,382
Short-term debt	4,985	12,904	10,495	1399	1,515
Current portion of long-term debt	2,499	25	1,162	4,174	5,833
Income taxes	606	580	718	2,121	5,665
Other current liabilities	34,966	38,950	35,980	42,177	47,025
Accrued compensation	5,096	5,264	5,819	6,103	6,830
Dividends payable	2,475	2,800	3,003	3,224	3,516
Miscellaneous current liabilities	27,395	30,886	27,158	32,850	36,679
Total current liabilities	**49,647**	**59,357**	**55,745**	**58,488**	**69,420**
Long-term debt	27,808	40,783	76,073	72,242	66,662
Long-term unearned revenue	2,095	6,441	2,643	3,815	4,530
Deferred income taxes	1,295	1,476	5,734	541	233
Other long-term liabilities	13,544	13,640	22,406	41,044	43,381
Total non-current liabilities	**44,742**	**62,340**	**106,856**	**117,642**	**114,806**
Total Liabilities	**94,389**	**121,697**	**162,601**	**176,130**	**184,226**
Common stock and paid-in capital	68,465	68,178	69,315	71,223	78520
Retained earnings	9,096	2,282	17,769	13,682	24150
Accumulated other comprehensive income	2,522	1,537	627	-2,187	-340
Total stockholders' equity	**80,083**	**71,997**	**87,711**	**82,718**	**102,330**
Total liabilities and stockholders' equity	**174,472**	**193,694**	**250,312**	**258,848**	**286,556**

Annex 2: Income statement of Microsoft Corporation. (in US dollar million)

	2015	2016	2017	2018	2019
Revenue:					
Product	75,956	67,336	63,811	64,497	66,069
Service and other	17,624	23,818	32,760	45,863	59,774
Total revenue	**93,580**	**91,154**	**96,571**	**110,360**	**125,843**
Cost of revenue:					
Product	21,410	17,880	15,175	15,420	16,273
Service and other	11,628	14,900	19,086	22,933	26,637
Total cost of revenue	**33,038**	**32,780**	**34,261**	**38,353**	**42,910**
Gross margin	**60,542**	**58,374**	**62,310**	**72,007**	**82,933**
Research and development	12,046	11,988	13,037	14,726	16,876
Sales and marketing	15,713	14,635	15,461	17,469	18,213
General and administrative	4,611	4,563	4,481	4,754	4,885
Impairment and restructuring	10,011	1,110	306	-	-
Operating expenses	**42,381**	**32,296**	**33,285**	**36,949**	**39,974**
Operating income	**18,161**	**26,078**	**29,025**	**35,058**	**42,959**
Other income (expense), net	346	-439	876	1,416	729
Income before income taxes	**18,507**	**25,639**	**29,901**	**36,474**	**43,688**

Provision for income taxes	6,314	5,100	4,412	19,903	4,448
Net income	**12,193**	**20,539**	**25,489**	**16,571**	**39,240**
Earnings per share:					
Basic	1.49	2.59	3.29	2.15	5.11
Diluted	1.48	2.56	3.25	2.13	5.06

Annex 3: Cash flow statement of Microsoft Corporation. (in US dollar million)

	2015	2016	2017	2018	2019
Operations					
Net income	12,193	20,539	25,489	16,571	39,240
Adjustments to reconcile net income to net cash from operations:					
Goodwill and asset impairments	7,498	630	0	0	0
Depreciation, amortization, and other	5,957	6,622	8,778	10,261	11,682
Stock-based compensation expense	2,574	2,668	3,266	3,940	4,652
Net recognized gains on investments and derivatives	-443	-223	-2,073	-2,212	-792
Deferred income taxes	376	2,479	-829	-5,143	-6,463
Changes in operating assets and liabilities:					
Accounts receivable	1,456	562	-1,216	-3,862	-2,812
Inventories	-272	600	50	-465	597
Other current assets	62	-1,212	1,028	-952	-1,718
Other long-term assets	346	-1,110	-917	-285	-1,834
Accounts payable	-1,054	88	81	1,148	232
Unearned revenue	0	2,565	3,820	5,922	4,462
Income taxes	0	-298	1,792	18,183	2,929
Other current liabilities	-624	-179	356	798	1,419
Other long-term liabilities	1,599	-406	-118	-20	591
Net cash from operations	29,668	33,325	39,507	43,884	52,185
Financing					

Repayments of short-term debt, maturities of 90 days or less, net	4,481	7,195	-4,963	-7,324	0
Proceeds from issuance of debt	10,680	13,884	44,344	7,183	0
Repayments of debt	-1,500	-2,796	-7,922	-10,060	-4,000
Common stock issued	634	668	772	1,002	1,142
Common stock repurchased	-14,443	-15,969	-11,788	-10,721	-19,543
Common stock cash dividends paid	-9,882	-11,006	-11,845	-12,699	-13,811
Other, net	362	-369	-190	-971	-675
Net cash from financing	-9,668	-8,393	8,408	-33,590	-36,887
Investing					
Additions to property and equipment	-5,944	-8,343	-8,129	-11,632	-13,925
Acquisition of companies, net of cash acquired, and purchases of intangible and other assets	-3,723	-1,393	-25,944	-888	-2,388
Purchases of investments	-98,729	-129,758	-176,905	-137,380	-57,697
Maturities of investments	15,013	22,054	28,044	26,360	20,043
Sales of investments	70,848	93,287	136,350	117,577	38,194
Securities lending payable	-466	203	-197	-98	0
Net cash from investing	-23,001	-23,950	-46,781	-6,061	-15,773
Effect of foreign exchange rates on cash	-73	-67	19	50	-115
Net change in cash and cash equivalents	-3,074	915	1,153	4,283	-590